State of Wisconsin
DEPARTMENT OF NATURAL RESOURCES
Wausau Service Center
5301 Rib Mountain Drive
Wausau WI 54401

Scott Walker, Governor Cathy Stepp, Secretary Telephone 608-266-2621 Toll Free 1-888-936-7463 TTY Access via relay - 711



February 28, 2013

BRRTS#02-50-553760

Mr. John Bale Flint Hills Resources Pine Bend, LLC P.O. Box 64596 St. Paul, MN 55164-0596



Subject: No Further Action, Ditch Release, Flint Hill Resources Pine Bend Junction City Terminal, Town of Carson, Wisconsin

Dear Mr. Bale:

On January 3, 2013, the Wisconsin Department of Natural Resources received the No Further Action Report, Ditch Assessment Flint Hills Resources Pine Bend LLC submitted by Tetra Tech. I have reviewed the document and file and concur that the environment has been restored to the extent practicable as provided in chapter NR. 708.09 Wisconsin Administrative Code. Therefore the response to this release has been completed and the Department of Natural Resources is requiring no further action at this time.

We appreciate your efforts to protect and restore the environment at this site. If you have questions regarding this No Further Action determination, please contact me at 715-359-6514.

Sincerely,

Lisa Gutknecht

Remediation & Redevelopment Program

c: Bill Evans, WDNR – Eau Claire (e-copy)

Greg Aldrian, Tetra Tech (e-copy)



December 6, 2012

Wisconsin Department of Natural Resources Attn: Ms. Lisa Gutknecht 5310 Rib Mountain Drive Wausau, WI 54401

SUBJECT:

No Further Action Report (NFA)

**Ditch Assessment** 

Flint Hills Resources Pine Bend, LLC

**Junction City, Wisconsin** WDNR BRRTS #02-50-553760 Tetra Tech Project # 114-340724

Dear Ms. Gutknecht:

Tetra Tech, Inc. (Tetra Tech) completed the interim action activities on the west property border/ditch area at Flint Hills Resources Pine Bend, LLC's (FHR's) fuel terminal located in Junction City, Wisconsin. The assessment included surface water sampling, subsurface soil and groundwater sample collection and interim action to prevent groundwater from seeping into the ditch. This work was performed as part of overall maintenance of the facility, and was completed in compliance with WDNR guidelines and requirements.

Based on WDNR's review of interim actions taken at this site, it was determined this site could be closed with a NR708 No Further Action Letter. A \$250.00 check to cover WDNR review fees is included with this report.

If you have any questions please feel free to contact me at (715) 355-4180.

Sincerely.

**TETRA TECH** 

Gregory M. Aldrian, P.G.

Program Manager

MAM/GMA:mam:prz

S:\ENVKOCH\_FHR\JUNCTION CITY\Ditch Project\2009\JCT Ditch Env Assesmnt Rept-Draft 01-12-10.doc

CC: Flint Hills Resources Pine Bend, LLC

> Attn: Mr. Jim Polum 2267 County Road HH Junction City, WI 54443

St. Paul, MN 55164-0596

Attn: Mr. John Bale

P.O. Box 64596

Flint Hills Resources Pine Bend, LLC

RECEIVED

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WAUSAU DNR
1/3[2013



### **No Further Action Report**

### Ditch Assessment FHR – Junction City Fuel Terminal Junction City, Wisconsin

Prepared for:

#### Flint Hills Resources Pine Bend, LLC

Attn: Mr. John Bale P.O. Box 64596 St. Paul, MN 55164-0596 651.480.3966

Prepared by:

#### **Tetra Tech**

5404 Alderson Street, Suite 100 Schofield, WI 54476 715.355.4180 Fax: 715.359.2853

Tetra Tech Project No. 114-340724

December 6, 2012

complex world

CLEAR SOLUTIONS™

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Figure 1 Site Layout Map

#### 1.0 INTRODUCTION

Tetra Tech, Inc. (Tetra Tech), completed the assessment on a portion of the drainage ditch located on the western property boundary which comprises the east side of State Highway "34" at Flint Hills Resources Pine Bend, LLC's (FHR's) fuel terminal located in Junction City, Wisconsin and completed an interim action report dated June 14, 2012 for WDNR review. That report detailed the initial investigation, interim actions [NR708.07(21)] and follow-up verification surface water sampling in the ditch. That work was performed as part of overall maintenance of the facility in conjunction with the Wisconsin Department of Transportation (WDOT) and was completed in compliance with Wisconsin Department of Natural Resources (WDNR) guidelines and requirements.

#### 2.0 BACKGROUND

On April 25, 2008, the Junction City Terminal Manager received notification from a WDOT Environmental Coordinator that a project manager had been walking the site as part of the STH "10" reconstruction, and had noticed "rust colored standing water" accompanied by "dead vegetation" in the drainage ditch immediately west of the FHR facility requesting immediate notification to the WDNR. After additional correspondence between FHR personnel and WDOT representatives, later that day Tetra Tech was directed to collect a surface water sample in the area identified as potentially affected in the early afternoon of April, 25, 2008. Upon receipt of analytical results on April 28, 2008 indicating impact by volatile organics, verification sampling was performed, collecting an additional surface water sample in the original location with an additional downstream sample obtained where the drainage exits FHR property. The WDNR was contacted on April 28, 2008 by FHR to report the incident as a possible spill, providing results from the April 25, 2008 sampling event. Results of the second sampling event were received on April 29th which again indicated volatile organics were present in surface water in the same location as the original sample, however downstream sampling results indicated surface water in this area remained unaffected. Results again were forwarded to the WDNR which prompted discussion with FHR as to potential source(s) of the identified impact, including prospective options for mitigation including the potential of placing rip-rap ballast rock in the ditch to facilitate aeration.

However, during the course of the on-going investigation, reconstruction of the STH "10" and "34" interchange was progressing, ultimately including the ditch area adjoining the FHR facility which was subject to re-grading, matting and reseeding with the work completed in August 2008. Anticipated mowing/maintenance operations in the newly re-vegetated ditch to be performed by the WDOT negated the option of the suggested stone rip-rap. Consequently the WDNR recommended two additional sampling events be performed, and based on these results potentially a "No Further Action" request could be submitted for regulatory review and project closure.

On October 8, 2008 the ditch sampling was again performed in the two prescribed locations. Results indicated volatile organics were not detected in either sample above respective Method Detection Levels (MDLs). A subsequent sampling event was performed on November 11, 2008 complying with regulatory recommendations in obtaining sequential samples to substantiate case closure objectives. However, results of the November sampling event again indicated the presence of volatile organics.

Consequently, additional sampling was recommended for the following month but with the onset of winter, had to be delayed, with WDNR concurrence, until spring thaw with sample collection completed on April 17, 2009. Results from the spring 2009 sampling event indicated volatile organics were not detected above the MDL in the original or downstream ditch sample. Table 1 includes all surface water results.

During the spring/early summer of 2009, FHR and Tetra Tech in conjunction with WDNR personnel formulated a plan for remedial action that included raising the elevation and regrading the ditch area with compacted clay soil. This remedial action was proposed as the surface water impacts are believed to be the result of seepage of impacted groundwater from a historical closed release site that began to occur due to a high water table which was further enabled by the WDOT re-grading that lowered the ditch elevation. During the final planning and approval stages of the proposed action, the WDNR reclassified the project necessitating it be closed in accordance with s. NR 726, requiring more extensive remedial investigation/site assessment prior to the implementation of remedial action and/or case closure request submittal.

As a result, Tetra Tech prepared a site investigation plan and upon regulatory concurrence and approval dated June 22, 2009, performed an environmental site assessment on October 13, 2009 (NR716). The investigation included obtaining an additional surface water sample and advancing Geoprobes in the ditch and highway shoulder/right-of-way areas to collect soil and groundwater samples for analysis. The results of these findings, including site figures, soil boring logs, tabularized historical sampling data, and chemical analysis of soil and water sampling reports were provided in Tetra Tech's Ditch Assessment Report dated April 14, 2010. Based upon results of the October 13, 2009 investigation, Tetra Tech on behalf of FHR, recommended in their April 14, 2010 report, to raise the elevation of the ditch approximately three feet using compacted clay soil to prevent groundwater from entering the ditch as an interim action in anticipation it will be the final response action [(NR708.07(4)].

#### 3.0 INTERIM ACTION ACTIVITIES

To implement the interim action to prevent groundwater from entering the ditch, the following activities and tasks were conducted in accordance with the July 20, 2011 WDNR approved remedial actions.

Tetra Tech selected SGS Environmental Contractor, LLC (SGS) of Merrill, Wisconsin to provide materials and equipment to conduct the field work for this project. Tetra Tech worked with SGS to prepare a traffic control plan and obtain all required WDOT permits.

On September 12, 2011, Tetra Tech and SGS mobilized to the site to implement interim action requirements. After completing FHR's EH&S Safe Work Permit Requirements, signs, barrels and cones were set up around the work zone perimeter to fulfill WDOT permit requirements.

The first phase of the project required stripping all topsoil from the work area and disking the native soil to create a bond between the native soil and clay material used to raise the elevation of the ditch. During the stripping phase of the project, the seeps became very apparent with the vegetation removed. The seep areas were marked by placing ribbon along the fence so these areas could be carefully observed during the placement of clay fill and after the interim action was completed.

After the grass and topsoil were removed, clay fill was placed in eight inch lifts and compacted starting at the truck exit and progressing south approximately 200 feet (see Figure 1). Fill was placed to a depth of three feet. During the placement and compaction of the clay, the areas of the previous seeps were continually monitored to make sure clay in these areas was not showing signs of becoming saturated while increasing the elevation of the ditch.

After the three feet of clay was installed and it was verified the seeps were stopped, six inches of topsoil was placed over the clay fill. The topsoil was then matted, seeded and mulched for erosion control. Hay bales were also placed at the south side of the project for additional erosion control measures.

#### 4.0 VERIFICATON MONITORING

After completing the interim action activities the week of September 12, 2011, weekly site visits were made for the next four weeks to verify the seeps had not returned and erosion control measures were working. Site visits verified the ditch was dry with no indication of seeps along the eastern bank or bottom of the ditch [(NR709.09(H)].

On September 19, 29 and October 26, 2011 surface water samples were collected at the north and south locations after previous rain events and analyzed for PVOCs. All results for both the north and south sampling locations were below the level of detection as indicated on Table 1.

#### 5.0 CONCLUSIONS

Based on observations made during and after interim action activities along with verification sampling of surface water, it is apparent the interim action was successful at preventing impacted groundwater from entering the ditch and mixing with surface water [(NR708.07(4)].

#### 6.0 RECOMMENDATIONS

Tetra Tech, on behalf of FHR, recommends that the interim actions taken at this site be considered the final response action and the site be considered for no further response action (NR708.09).

#### **TETRA TECH**

This report was prepared by:

Gregory/M/ Aldrian, P.G.

Program Manager

"I, Gregory M. Aldrian, hereby certify that I am a hydrogeologist as that term is defined in s. NR 712.03 (1), Wis. Adm. Code, and that to the best of my knowledge, all of the information contained in this document is correct and the document was prepared in compliance with all applicable requirements in chs. NR 700 to 726, Wis. Adm. Code."

Dated

CAW/MAM/GMA:caw/mam:prz S:\ENV\KOCH\_FHR\JUNCTION CITY\Ditch Project\2009\JCT Ditch No Further Action Rept-09-26-12.doc



Abandoned Well

Active Monitoring Well

Active Piezometer

Potable Well

Property Boundary

Ditch Regrade Area

Figure 1
Site Layout Map
Junction City Fuel Terminal
Flint Hills Resources Pine Bend, LLC.
Portage County, Wisconsin



#### TABLE 1 **CHEMICAL ANALYSIS OF SURFACE WATER HWY 34 DITCH WATER** FLINT HILLS RESOURCES PINE BEND, LLC **JUNCTION CITY, WISCONSIN** Tetra Tech #114-340632

Sample Identification		North Location   (50-ft southeast of MW-5 and 25-ft north of the pipeline)   North Location   (50-ft southeast of MW-5 and 25-ft north of the pipeline)   North Location   Nor									
Date Sampled	4/25/2008										
Benzene	66.4	18	<0.23	89.3	<0.23	<7.8	<0.39	<0.39	0.5	5	
Ethylbenzene	11.8	ND	<0.40	14	<0.40	<8.3	<0.41	<0.41	140	700	
Methyl-tert-butyl ether	3.52	ND	<0.36	2.2	<0.36	<7.6	<0.38	<0.38	12	60	
Toluene	2.65	ND	<0.36	1.9	<0.36	<8.3	<0.42	<0.42	200	1000	
Trimethylbenzene	11.24	ND	<0.79	5.08	<0.79	<16.5	<0.83	<0.83	96	480	
Xylene	15.92	ND	<1.10	10.55	<1.10	<25.0	<1.25	<1.25	1000	10000	

Pre-Interim Action Post-Interim Action

Sample				South L	ocation							
Identification		(corner of Hwy 34 and Hwy 10)										
Date Sampled	4/25/2008	4/25/2008   4/28/2008   10/8/2008   11/12/2008   4/16/2009   9/19/2011   9/29/2011   10/26/2011										
Benzene		<0.31	<0.23	<0.23	<0.23	<0.39	<0.39	<0.39	0.5	5		
Ethylbenzene		2.96	<0.40	<0.40	<0.40	<0.41	<0.41	<0.41	140	700		
Methyl-tert-butyl ether		4.33	<0.36	<0.36	<0.36	<0.38	<0.38	<0.38	12	60		
Toluene		1.03	<0.36	<0.36	<0.36	<0.42	<0.42	<0.42	200	1000		
Trimethylbenzene		2.664	<0.79	<0.79	<0.79	<0.83	<0.83	<0.83	96	480		
Xylene		5.6	<1.10	<1.10	<1.10	<1.25	<1.25	<1.25	1000	10000		

Pre-Interim Action Post-Interim Action

All concentrations in ppl (ug/L)

-- = Location not sampled

PAL = WDNR Preventative Action Limit

ES = WDNR Enforcement Standard

ND = Not Detected

< = Parameter was not detected and if present is less than the limit of detection reported

0.58

= concentration > NR 140 PAL

66.4

= concentration > NR 140 ES



#### **ANALYTICAL RESULTS**

Project:

114-340 656.100 FHR JCT CITY S

Pace Project No.:

4059342

Sample: MW-5	Lab ID: 405934	2008 Collecte	d: 04/24/1	2 13:35	Received: 04	/26/12 09:05 N	Matrix: Water	
Parameters	Results Units	s LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qua
8270 MSSV PAH by HVI	Analytical Method	: EPA 8270 by HVI	Preparation	n Meth	od: EPA 3510			
Anthracene	<b>&lt;1.0</b> ug/L	18.0	1.0	400	04/27/12 12:00	05/01/12 13:58	3 120-12-7	
Benzo(a)anthracene	<b>&lt;1.7</b> ug/L	18.0	1.7	400	04/27/12 12:00	05/01/12 13:58	3 56-55-3	
Benzo(a)pyrene	<b>&lt;1.7</b> ug/L	18.0	1.7	400	04/27/12 12:00	05/01/12 13:58	50-32-8	
Benzo(b)fluoranthene	<b>&lt;1.8</b> ug/L	18.0	1.8	400		05/01/12 13:58		
Benzo(g,h,i)perylene	<b>&lt;2.1</b> ug/L	18.0	2.1	400	04/27/12 12:00	05/01/12 13:58	191-24-2	
Benzo(k)fluoranthene	<1.9 ug/L	18.0	1.9	400	04/27/12 12:00	05/01/12 13:58	207-08-9	
Chrysene	<1.8 ug/L	18.0	1.8	400	04/27/12 12:00	05/01/12 13:58	218-01-9	
Dibenz(a,h)anthracene	<3.6 ug/L	18.0	3.6	400	04/27/12 12:00	05/01/12 13:58	53-70-3	
Fluoranthene	<1.3 ug/L	18.0	1.3	400	04/27/12 12:00	05/01/12 13:58	206-44-0	
Fluorene	<1.2 ug/L	18.0	1.2	400	04/27/12 12:00	05/01/12 13:58	86-73-7	
ndeno(1,2,3-cd)pyrene	<b>&lt;2.1</b> ug/L	18.0	2.1	400	04/27/12 12:00	05/01/12 13:58	193-39-5	
1-Methylnaphthalene	<b>26.1</b> ug/L	18.0	1.8	400	04/27/12 12:00	05/01/12 13:58	90-12-0	
2-Methylnaphthalene	<b>33.7</b> ug/L	18.0	1.8	400	04/27/12 12:00	05/01/12 13:58	91-57-6	
Naphthalene	<b>79.3</b> ug/L	18.0	1.8	400	04/27/12 12:00	05/01/12 13:58	91-20-3	
Phenanthrene	<3.3 ug/L	18.0	3.3	400	04/27/12 12:00	05/01/12 13:58	85-01-8	
Pyrene	<1.7 ug/L	18.0	1.7	400	04/27/12 12:00	05/01/12 13:58	129-00-0	
Surrogates								
2-Fluorobiphenyl (S)	0 %.	28-130		400	04/27/12 12:00	05/01/12 13:58	321-60-8	S4
Гегрhenyl-d14 (S)	0 %.	49-130		400	04/27/12 12:00	05/01/12 13:58	1718-51-0	S4
3260 MSV	Analytical Method:	EPA 8260						
Benzene	<b>1660</b> ug/L	20.0	8.2	20		04/27/12 14:47	71-43-2	
Bromobenzene	<16.4 ug/L	20.0	16.4	20		04/27/12 14:47	108-86-1	
Bromochloromethane	<19.4 ug/L	20.0	19.4	20		04/27/12 14:47	74-97-5	
Bromodichloromethane	<11.2 ug/L	20.0	11.2	20		04/27/12 14:47	75-27-4	
Bromoform	<18.8 ug/L	20.0	18.8	20		04/27/12 14:47	75-25-2	
Bromomethane	<18.2 ug/L	20.0	18.2	20		04/27/12 14:47	74-83-9	
n-Butylbenzene	28.0 ug/L	20.0	18.6	20		04/27/12 14:47	104-51-8	
ec-Butylbenzene	<17.8 ug/L	100	17.8	20		04/27/12 14:47	135-98-8	
ert-Butylbenzene	<19.4 ug/L	20.0	19.4	20		04/27/12 14:47	98-06-6	
Carbon tetrachloride	<9.8 ug/L	20.0	9.8	20		04/27/12 14:47	56-23-5	
Chlorobenzene	<8.2 ug/L	20.0	8.2	20		04/27/12 14:47	108-90-7	
Chloroethane	<19.4 ug/L	20.0	19.4	20		04/27/12 14:47	75-00-3	
Chloroform	<26.0 ug/L	100	26.0	20		04/27/12 14:47	67-66-3	
Chloromethane	<4.8 ug/L	20.0	4.8	20		04/27/12 14:47	74-87-3	
-Chlorotoluene	<17.0 ug/L	20.0	17.0	20		04/27/12 14:47	95-49-8	
I-Chlorotoluene	<14.8 ug/L	20.0	14.8	20		04/27/12 14:47		
,2-Dibromo-3-chloropropane	<33.6 ug/L	100	33.6	20		04/27/12 14:47		
Dibromochloromethane	<16.2 ug/L	20.0	16.2	20		04/27/12 14:47		
,2-Dibromoethane (EDB)	<11.2 ug/L	20.0	11.2	20		04/27/12 14:47		
Dibromomethane	<12.0 ug/L	20.0	12.0	20		04/27/12 14:47		
,2-Dichlorobenzene	<16.6 ug/L	20.0	16.6	20		04/27/12 14:47		
,3-Dichlorobenzene	<17.4 ug/L	20.0	17.4	20		04/27/12 14:47		
,4-Dichlorobenzene	<19.0 ug/L	20.0	19.0	20		04/27/12 14:47		
Dichlorodifluoromethane	<19.8 ug/L	20.0	19.8	20		04/27/12 14:47		
I,1-Dichloroethane	<15.0 ug/L	20.0	15.0	20		04/27/12 14:47		

Date: 05/04/2012 07:50 AM





#### **ANALYTICAL RESULTS**

Project:

114-340 656.100 FHR JCT CITY S

Pace Project No.:

4059342

Sample: MW-5	Lab ID: 4059342008	3 Collecte	d: 04/24/12	2 13:35	Received: 04	/26/12 09:05	Matrix: Water
Parameters	Results Units	LOQ	LOD	DF	Prepared	Analyzed	I CAS No. Qu
8260 MSV	Analytical Method: EPA	A 8260					
1,2-Dichloroethane	<7.2 ug/L	20.0	7.2	20		04/27/12 14:	47 107-06-2
1,1-Dichloroethene	<11.4 ug/L	20.0	11.4	20		04/27/12 14:	47 75-35-4
cis-1,2-Dichloroethene	<16.6 ug/L	20.0	16.6	20		04/27/12 14:	47 156-59-2
trans-1,2-Dichloroethene	<17.8 ug/L	20.0	17.8	20		04/27/12 14:	47 156-60-5
1,2-Dichloropropane	<9.8 ug/L	20.0	9.8	20		04/27/12 14:	47 78-87-5
1,3-Dichloropropane	<12.2 ug/L	20.0	12.2	20		04/27/12 14:	47 142-28-9
2,2-Dichloropropane	<12.4 ug/L	20.0	12.4	20		04/27/12 14:	47 594-20-7
1,1-Dichloropropene	<15.0 ug/L	20.0	15.0	20		04/27/12 14:	47 563-58-6
cis-1,3-Dichloropropene	<4.0 ug/L	20.0	4.0	20		04/27/12 14:	47 10061-01-5
trans-1,3-Dichloropropene	<3.8 ug/L	20.0	3.8	20		04/27/12 14:	47 10061-02-6
Diisopropyl ether	<15.2 ug/L	20.0	15.2	20		04/27/12 14:	47 108-20-3
Ethylbenzene	657 ug/L	20.0	10.8	20		04/27/12 14:	47 100-41-4
Hexachloro-1,3-butadiene	<13.4 ug/L	100	13.4	20		04/27/12 14:	47 87-68-3
sopropylbenzene (Cumene)	<b>26.8</b> ug/L	20.0	11.8	20		04/27/12 14:	47 98-82-8
o-Isopropyltoluene	<13.4 ug/L	20.0	13.4	20		04/27/12 14:	47 99-87-6
Methylene Chloride	<8.6 ug/L	20.0	8.6	20		04/27/12 14:	47 75-09-2
Methyl-tert-butyl ether	<12.2 ug/L	20.0	12.2	20		04/27/12 14:	47 1634-04-4
Naphthalene	<b>158</b> ug/L	100	17.8	20		04/27/12 14:	47 91-20-3
n-Propylbenzene	98.9 ug/L	20.0	16.2	20		04/27/12 14:	47 103-65-1
Styrene	<17.2 ug/L	20.0	17.2	20		04/27/12 14:	47 100-42-5
1,1,1,2-Tetrachloroethane	<18.4 ug/L	20.0	18.4	20		04/27/12 14:	47 630-20-6
1,1,2,2-Tetrachloroethane	<b>&lt;4.0</b> ug/L	20.0	4.0	20		04/27/12 14:	47 79-34-5
Tetrachloroethene	<9.0 ug/L	20.0	9.0	20		04/27/12 14:	47 127-18-4
Foluene	348 ug/L	20.0	13.4	20		04/27/12 14:	47 108-88-3
1,2,3-Trichlorobenzene	<14.8 ug/L	20.0	14.8	20		04/27/12 14:	47 87-61-6
1,2,4-Trichlorobenzene	<19.4 ug/L	100	19.4	20		04/27/12 14:	47 120-82-1
1,1,1-Trichloroethane	<18.0 ug/L	20.0	18.0	20		04/27/12 14:	47 71-55-6
I,1,2-Trichloroethane	<8.4 ug/L	20.0	8.4	20		04/27/12 14:	47 79 <b>-</b> 00-5
Frichloroethene	<9.6 ug/L	20.0	9.6	20		04/27/12 14:	47 79-01-6
Frichlorofluoromethane	<15.8 ug/L	20.0	15.8	20		04/27/12 14:	47 75-69-4
1,2,3-Trichloropropane	<19.8 ug/L	20.0	19.8	20		04/27/12 14:	47 96-18-4
I,2,4-Trimethylbenzene	<b>428</b> ug/L	20.0	19.4	20		04/27/12 14:4	47 95-63-6
, 3,5-Trimethylbenzene	117 ug/L	20.0	16.6	20		04/27/12 14:	47 108-67-8
/inyl chloride	<3.6 ug/L	20.0	3.6	20		04/27/12 14:4	47 75-01-4
n&p-Xylene	1010 ug/L	40.0	36.0	20		04/27/12 14:4	47 179601-23-1
-Xylene	<b>253</b> ug/L	20.0	16.6	20		04/27/12 14:4	47 95-47-6
Surrogates	<u> </u>						
-Bromofluorobenzene (S)	89 %.	70-130		20		04/27/12 14:4	47 460-00-4
Dibromofluoromethane (S)	96 % <i>.</i>	70-130		20		04/27/12 14:4	47 1868-53-7
Talvana do (C)	40.4.0/	70 120		20		04/07/40 44.	47 2037 26 5

Toluene-d8 (S)

70-130

104 %.

04/27/12 14:47 2037-26-5

#### Aldrian, Greg

From:

Anderson, Carrie

Sent:

Thursday, June 28, 2012 10:32 AM

To:

Hanson, David L - DNR

Cc:

Aldrian, Greq

Subject:

RE: Check sent to WDNR

#### David,

The \$500 is for technical assistance.

#### Carrie

From: Hanson, David L - DNR [mailto:David.Hanson@wisconsin.gov]

Sent: Thursday, June 28, 2012 10:30 AM

**To:** Anderson, Carrie **Cc:** Aldrian, Greg

Subject: RE: Check sent to WDNR

Is Tetra Tech going to be requesting technical assistance from the DNR or asking us to review a site investigation workplan? I'm not sure what you mean by "interim action".

#### Thanks,

#### David



Environmental Program Associate Southeast Region Headquarters Remediation and Redevelopment Program Wisconsin Department of Natural Resources 2300 N. Dr. Martin Luther King Dr. Milwaukee, WI 53212

**Phone:** (414) 263-8680 **Fax:** (414) 263-8550

E-mail: david.hanson@wisconsin.gov

Website: dnr.wi.gov

#### Find us on Facebook: www.facebook.com/WIDNR

From: Anderson, Carrie [mailto:Carrie.Anderson@tetratech.com]

Sent: Thursday, June 28, 2012 9:47 AM

To: Hanson, David L - DNR

Cc: Aldrian, Greg

Subject: FW: Check sent to WDNR

#### Dave,

Thank you for returning my call.

The Tetra Tech check received for \$500 (check#1560275) should be applied to the FHR Interim Action WDNR BRRTS# 02-50-553760.

Please contact our office if you need any additional information. Thank you for your help.



June 14, 2012

Flint Hills Resources Pine Bend, LLC Attn: Mr. John Bale P.O. Box 64596 St. Paul. MN 55164-0596

SUBJECT:

**Interim Action Report** 

Ditch Assessment

Flint Hills Resources Pine Bend, LLC

**Junction City, Wisconsin** WDNR BRRTS #02-50-553760 Tetra Tech Project # 114-340632

Dear Mr. Bale:

Tetra Tech, Inc. (Tetra Tech) completed the interim action activities on the west property border/ditch area at Flint Hills Resources Pine Bend, LLC's (FHR's) fuel terminal located in Junction City, Wisconsin. The assessment included surface water sampling, subsurface soil and groundwater sample collection and interim action to prevent groundwater from seeping into the ditch. This work was performed as part of overall maintenance of the facility, and was completed in compliance with WDNR guidelines and requirements.

In addition, on behalf of FHR, we are forwarding a copy of this report to Ms. Lisa Gutknecht, WDNR project manager for the Junction City Terminal. A \$500.00 check to cover WDNR review fees is included with the WDNR copy of the report.

If you have any questions please feel free to contact me at (715) 355-4180.

Sincerely.

**TETRA TECH** 

Gregory M. Aldrian, P.G.

Program Manager

MAM/GMA:mam:prz S:\ENVKOCH FHRUUNCTION CITY\Ditch Project\2009\JCT Ditch Env Assesmnt Rept-Draft 01-12-10.doc

CC:

Flint Hills Resources, LP Attn: Mr. Chad Franzoi 2267 County Road HH

Junction City, WI 54443

WDNR

RECEIVED
NAUSAU DNR Attn: Ms. Lisa Gutknecht 5310 Rib Mountain Drive Wausau, WI 54401



### **Interim Action Report**

### Ditch Assessment FHR – Junction City Fuel Terminal Junction City, Wisconsin

Prepared for:

#### Flint Hills Resources Pine Bend, LLC

Attn: Mr. John Bale P.O. Box 64596 St. Paul, MN 55164-0596 651.480.3966

Prepared by:

#### **Tetra Tech**

5404 Alderson Street, Suite 100 Schofield, WI 54476 715.355.4180 Fax 715.359.2853

Tetra Tech Project No. 114-340632

June 14, 2012

complex world

**CLEAR SOLUTIONS™** 

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Appendix B: Surface Water Analytical Reports

#### 1.0 INTRODUCTION

Tetra Tech, Inc. (Tetra Tech), completed the assessment on a portion of the drainage ditch located on the western property boundary which comprises the east side of State Highway "34" at Flint Hills Resources Pine Bend, LLC's (FHR's) fuel terminal located in Junction City, Wisconsin (Figure 1). This report details the initial investigation, interim actions and follow-up verification surface water sampling in the ditch. This work was performed as part of overall maintenance of the facility in conjunction with the Wisconsin Department of Transportation (WDOT) and was completed in compliance with Wisconsin Department of Natural Resources (WDNR) guidelines and requirements.

#### 2.0 BACKGROUND

On April 25, 2008, the Junction City Terminal Manager received notification from a WDOT Environmental Coordinator that a project manager had been walking the site as part of the STH "10" reconstruction, and had noticed "rust colored standing water" accompanied by "dead vegetation" in the drainage ditch immediately west of the FHR facility (Figure 2), requesting immediate notification to the WDNR. After additional correspondence between FHR personnel and WDOT representatives, later that day Tetra Tech was directed to collect a surface water sample in the area identified as potentially affected in the early afternoon of April, 25, 2008. Upon receipt of analytical results on April 28, 2008 indicating impact by volatile organics, verification sampling was performed, collecting an additional surface water sample in the original location with an additional downstream sample obtained where the drainage exits FHR property. The WDNR was contacted on April 28, 2008 by FHR to report the incident as a possible spill, providing results from the April 25, 2008 sampling event. Results of the second sampling event were received on April 29th which again indicated volatile organics were present in surface water in the same location as the original sample, however downstream sampling results indicated surface water in this area remained unaffected. Results again were forwarded to the WDNR which prompted discussion with FHR as to potential source(s) of the identified impact, including prospective options for mitigation including the potential of placing rip-rap ballast rock in the ditch to facilitate aeration.

However, during the course of the on-going investigation, reconstruction of the STH "10" and "34" interchange was progressing, ultimately including the ditch area adjoining the FHR facility which was subject to re-grading, matting and reseeding with the work completed in August 2008. Anticipated mowing/maintenance operations in the newly re-vegetated ditch to be performed by the WDOT negated the option of the suggested stone rip-rap. Consequently the WDNR recommended two additional sampling events be performed, and based on these results potentially a "No Further Action" request could be submitted for regulatory review and project closure.

On October 8, 2008 the ditch sampling was again performed in the two prescribed locations. Results indicated volatile organics were not detected in either sample above respective Method Detection Levels (MDLs). A subsequent sampling event was performed on November 11, 2008 complying with regulatory recommendations in obtaining sequential samples to substantiate case closure objectives. However, results of the November sampling event again indicated the presence of volatile organics.

Consequently, additional sampling was recommended for the following month but with the onset of winter, had to be delayed, with WDNR concurrence, until spring thaw with sample collection

completed on April 17, 2009. Results from the spring 2009 sampling event indicated volatile organics were not detected above the MDL in the original or downstream ditch sample. Table 1 includes all surface water results.

During the spring/early summer of 2009, FHR and Tetra Tech in conjunction with WDNR personnel formulated a plan for remedial action that included raising the elevation and regrading the ditch area with compacted clay soil. This remedial action was proposed as the surface water impacts are believed to be the result of seepage of impacted groundwater from a historical closed release site that began to occur due to a high water table which was further enabled by the WDOT re-grading that lowered the ditch elevation. During the final planning and approval stages of the proposed action, the WDNR reclassified the project necessitating it be closed in accordance with s. NR 726, requiring more extensive remedial investigation/site assessment prior to the implementation of remedial action and/or case closure request submittal.

As a result, Tetra Tech prepared a site investigation plan and upon regulatory concurrence and approval, performed an environmental site assessment on October 13, 2009. The investigation included obtaining an additional surface water sample and advancing Geoprobes in the ditch and highway shoulder/right-of-way areas to collect soil and groundwater samples for analysis. The results of these findings, including site figures, soil boring logs, tabularized historical sampling data, and chemical analysis of soil and water sampling reports were provided in Tetra Tech's Ditch Assessment Report dated April 14, 2010. Based upon results of the October 13, 2009 investigation, Tetra Tech on behalf of FHR, recommended in their April 14, 2010 report, to raise the elevation of the ditch approximately three feet using compacted clay soil to prevent groundwater from entering the ditch as an interim action in anticipation it will be the final response action.

#### 3.0 INTERIM ACTION ACTIVITIES

To implement the interim action to prevent groundwater from entering the ditch, the following activities and tasks were conducted in accordance with the WDNR approved remedial actions.

Tetra Tech selected SGS Environmental Contractor, LLC (SGS) of Merrill, Wisconsin to provide materials and equipment to conduct the field work for this project. Tetra Tech worked with SGS to prepare a traffic control plan and obtain all required WDOT permits.

On September 12, 2011, Tetra Tech and SGS mobilized to the site to implement interim action requirements. After completing FHR's EH&S Safe Work Permit Requirements, signs, barrels and cones were set up around the work zone perimeter to fulfill WDOT permit requirements.

The first phase of the project required stripping all topsoil from the work area and disking the native soil to create a bond between the native soil and clay material used to raise the elevation of the ditch. During the stripping phase of the project, the seeps became very apparent with the vegetation removed. The seep areas were marked by placing ribbon along the fence so these areas could be carefully observed during the placement of clay fill and after the interim action was completed.

After the grass and topsoil were removed, clay fill was placed in eight inch lifts and compacted starting at the truck exit and progressing south approximately 200 feet. Fill was placed to a depth of three feet. During the placement and compaction of the clay, the areas of the previous

seeps were continually monitored to make sure clay in these areas was not showing signs of becoming saturated while increasing the elevation of the ditch.

After the three feet of clay was installed and it was verified the seeps were stopped, six inches of topsoil was placed over the clay fill. The topsoil was then matted, seeded and mulched for erosion control. Hay bales were also placed at the south side of the project for additional erosion control measures. Photographs of interim action activities are included in Appendix A.

#### 4.0 VERIFICATION MONITORING

After completing the interim action activities the week of September 12, 2011, weekly site visits were made for the next four weeks to verify the seeps had not returned and erosion control measures were working. Site visits verified the ditch was dry with no indication of seeps along the eastern bank or bottom of the ditch.

On September 19, 29 and October 26, 2011 surface water samples were collected at the north and south locations (Figure 2) after previous rain events and analyzed for PVOCs. All results for both the north and south sampling locations were below the level of detection (Table 1). The analytical reports are included in Appendix B.

#### 5.0 CONCLUSIONS

Based on observations made during and after interim action activities along with verification sampling of surface water, it is apparent the interim action was successful at preventing impacted groundwater from entering the ditch and mixing with surface water.

#### 6.0 RECOMMENDATIONS

Tetra Tech, on behalf of FHR, recommends that the interim actions taken at this site be considered the final response action and the site be considered for closure.

#### 7.0 REMARKS

Information contained in this report represents our professional opinions. These opinions were arrived at in accordance with currently accepted hydrogeological and engineering practices at this time and location. Other than this, no warranty is implied or intended.

#### **TETRA TECH**

This report was prepared by:

Gregory M. Aldrian, P.G.

Program Manager

Dated

\*I, Gregory M. Aldrian, hereby certify that I am a hydrogeologist as that term is defined in s. NR 712.03 (1), Wis. Adm. Code, and that to the best of my knowledge, all of the information contained in this document is correct and the document was prepared in compliance with all applicable requirements in chs. NR 700 to 726, Wis. Adm. Code."

CAW/MAM/GMA:caw/mam:prz

S:\ENV\KOCH\_FHR\JUNCTION CITY\Ditch Project\2009\JCT Ditch Env Assesmnt Rept-Final-04-13-10.doc



# TABLE 1 CHEMICAL ANALYSIS OF SURFACE WATER HWY 34 DITCH WATER FLINT HILLS RESOURCES PINE BEND, LLC JUNCTION CITY, WISCONSIN Tetra Tech #114-340632

Sample Identification		North Location (50-ft southeast of MW-5 and 25-ft north of the pipeline)									
Date Sampled	Sampled 4/25/2008 4/28/2008 10/8/2008 11/12/2008 4/16/2009 9/19/2011 9/29/2011 10/26/2011									ES	
Benzene	66.4	18	<0.23	89.3	<0.23	<7.8	<0.39	<0.39	0.5	5	
Ethylbenzene	11.8	ND	<0.40	14	<0.40	<8.3	<0.41	<0.41	140	700	
Methyl-tert-butyl ether	3.52	ND	<0.36	2.2	<0.36	<7.6	<0.38	<0.38	12	60	
Toluene	2.65	ND	<0.36	1.9	<0.36	<8.3	<0.42	<0.42	200	1000	
Trimethylbenzene	11.24	ND	<0.79	5.08	<0.79	<16.5	<0.83	<0.83	96	480	
Xylene	15.92	ND	<1.10	10.55	<1.10	<25.0	<1.25	<1.25	1000	10000	

Pre-Interim Action Post-Interim Action

Sample		South Location									
Identification		(corner of Hwy 34 and Hwy 10)									
Date Sampled	4/25/2008 4/28/2008 10/8/2008 11/12/2008 4/16/2009 9/19/2011 9/29/2011 10/26/2011								PAL	ES	
Benzene		<0.31	<0.23	<0.23	<0.23	<0.39	<0.39	<0.39	0.5	5	
Ethylbenzene		2.96	<0.40	<0.40	<0.40	<0.41	<0.41	<0.41	140	700	
Methyl-tert-butyl ether		4.33	<0.36	<0.36	<0.36	<0.38	<0.38	<0.38	12	60	
Toluene		1.03	<0.36	<0.36	<0.36	<0.42	<0.42	<0.42	200	1000	
Trimethylbenzene		2.664	<0.79	<0.79	<0.79	<0.83	<0.83	<0.83	96	480	
Xylene		5.6	<1.10	<1.10	<1.10	<1.25	<1.25	<1.25	1000	10000	

Pre-Interim Action Post-Interim Action

All concentrations in ppl (ug/L)

--- = Location not sampled

PAL = WDNR Preventative Action Limit

ES = WDNR Enforcement Standard

ND = Not Detected

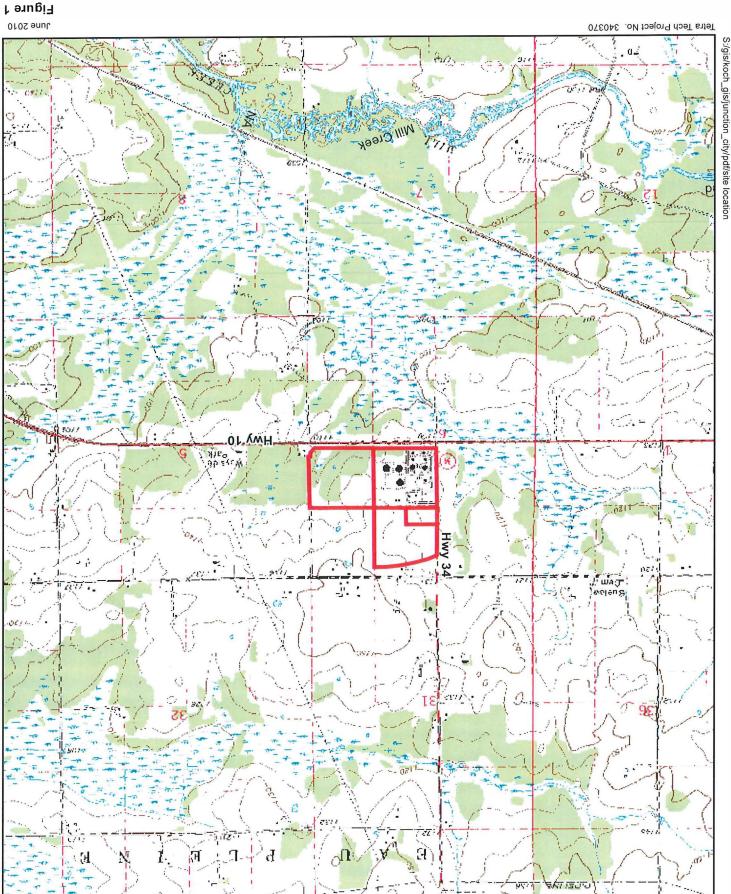
< = Parameter was not detected and if present is less than the limit of detection reported

0.58

= concentration > NR 140 PAL

66.4

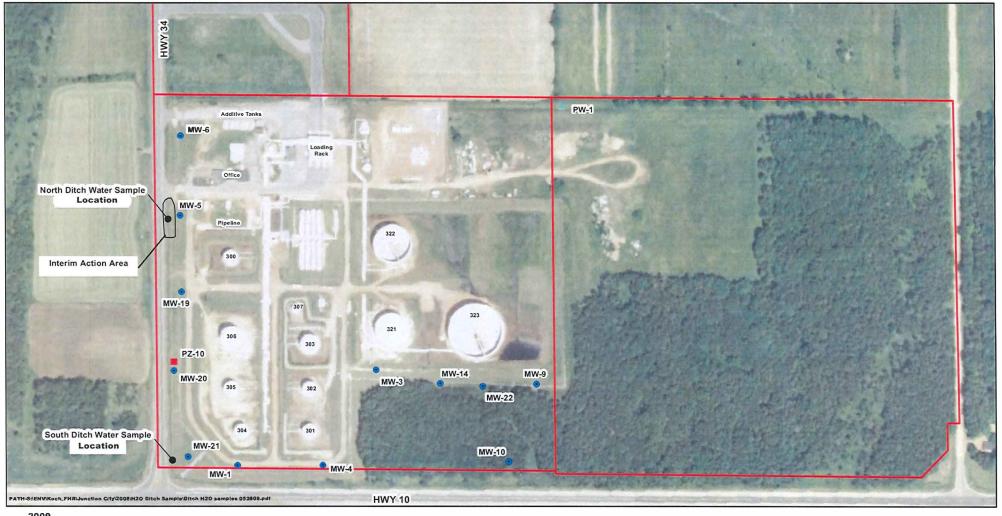
= concentration > NR 140 ES



Junction City, WI 54443 2267 State Highway 34 Flint Hills Resources Pine Bend, LLC Junction City Bulk Fuel Terminal Site Location Map











Legend

Figure 2 Site Layout Map **Junction City Fuel Terminal** Flint Hills Resources Pine Bend, LLC Portage County, Wisconsin

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### Appendix A

**Project Photo Log** 



Photograph 1. Looking south at area of the proposed interim action.



Photograph 2. Looking southeast at groundwater seeps along the eastern bank of the ditch.



Photograph 3. Looking south, removing topsoil and placement of first lift of clay.



Photograph 4. Looking south, compacting clay in lifts.



Photograph 5. Looking east at area with previous seeps.



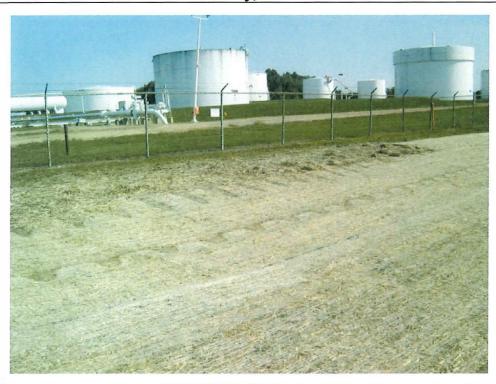
Photograph 6. Looking northeast, final compaction of clay in area of former seeps.



Photograph 7. Looking south, spreading topsoil over compacted clay.



Photograph 8. Looking south, matting and seeding topsoil.



Photograph 9. Looking southeast at completed interim action.



Photograph 10. Looking south, final erosion control measures in place.



**Surface Water Analytical Report** 

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October 31, 2011

Marsha Meurette Tetra Tech, INC. 5404 Alderson St Suite 1 Schofield, WI 54476

RE: Project: 114-340632-200 J.C DITCH WATER

Pace Project No.: 4052827

#### Dear Marsha Meurette:

Enclosed are the analytical results for sample(s) received by the laboratory on October 27, 2011. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards, where applicable, unless otherwise narrated in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Brian Basten

brian.basten@pacelabs.com Project Manager

Enclosures





Pace Analytical Services, Inc. 1241 Bellevue Street - Suite 9 Green Bay, WI 54302 (920)469-2436

#### **CERTIFICATIONS**

Project:

114-340632-200 J.C DITCH WATER

Pace Project No.:

4052827

**Green Bay Certification IDs** 

1241 Bellevue Street, Green Bay, WI 54302
1241 Bellevue Street, Green Bay, WI 54302
Florida/NELAP Certification #: E87948
Illinois Certification #: 200050
Kentucky Certification #: 82
Louisiana Certification #: 04168
Minnesota Certification #: 055-999-334
New York Certification #: 11888 New York Certification #: 11888

North Carolina Certification #: 503 North Dakota Certification #: R-150 South Carolina Certification #: 83006001 US Dept of Agriculture #: S-76505
Wisconsin Certification #: 405132750
Wisconsin DATCP Certification #: 105-444





#### **SAMPLE SUMMARY**

Project:

114-340632-200 J.C DITCH WATER

Pace Project No.: 4052827

Lab ID	Sample ID	Matrix	Date Collected	Date Received
4052827001	DITCH WATER NORTH	Water	10/26/11 13:05	10/27/11 10:05
4052827002	DITCH WATER SOUTH	Water	10/26/11 13:15	10/27/11 10:05
4052827003	TRIP BLANK	Water	10/26/11 09:00	10/27/11 10:05





#### **SAMPLE ANALYTE COUNT**

Project:

114-340632-200 J.C DITCH WATER

Pace Project No.: 4052827

Lab ID	Sample ID	Method	Analysts	Analytes Reported
4052827001	DITCH WATER NORTH	WI MOD GRO	SES	9
4052827002	DITCH WATER SOUTH	WI MOD GRO	SES	9
4052827003	TRIP BLANK	WI MOD GRO	SES	9



#### **ANALYTICAL RESULTS**

Project:

114-340632-200 J.C DITCH WATER

Pace Project No.:

4052827 Sample: DITCH WATER NORTH Lab ID: 4052827001 Collected: 10/26/11 13:05 Received: 10/27/11 10:05 Parameters Results Units LOQ LOD DF Prepared Analyzed CAS No. Qual **WIGRO GCV** Analytical Method: WI MOD GRO <0.39 ug/L 0.39 1 10/28/11 16:49 71-43-2 Benzene 1.0 Ethylbenzene <0.41 ug/L 0.41 1 10/28/11 16:49 100-41-4 1.0 Methyl-tert-butyl ether <0.38 ug/L 1.0 0.38 1 10/28/11 16:49 1634-04-4 Toluene <0.42 ug/L 1.0 0.42 1 10/28/11 16:49 108-88-3 1,2,4-Trimethylbenzene <0.43 ug/L 1.0 0.43 1 10/28/11 16:49 95-63-6 10/28/11 16:49 108-67-8 1,3,5-Trimethylbenzene <0.40 ug/L 1.0 0.40 1 m&p-Xylene <0.87 ug/L 2.0 0.87 1 10/28/11 16:49 179601-23-1 o-Xylene <0.38 ug/L 1.0 0.38 1 10/28/11 16:49 95-47-6 a,a,a-Trifluorotoluene (S) 101 %. 80-120 1 10/28/11 16:49 98-08-8 Lab ID: 4052827002 Collected: 10/26/11 13:15 Sample: DITCH WATER SOUTH Received: 10/27/11 10:05 Matrix: Water LOD DF **Parameters** Results Units LOQ CAS No. Prepared Analyzed Qual **WIGRO GCV** Analytical Method: WI MOD GRO <0.39 ug/L 0.39 Benzene 1.0 1 10/28/11 17:14 71-43-2 <0.41 ug/L 1.0 0.41 1 10/28/11 17:14 100-41-4 Ethylbenzene <0.38 ug/L 1.0 10/28/11 17:14 1634-04-4 Methyl-tert-butyl ether 0.38 1 <0.42 ug/L 1.0 0.42 10/28/11 17:14 108-88-3 Toluene 1 1,2,4-Trimethylbenzene <0.43 ug/L 1.0 0.43 1 10/28/11 17:14 95-63-6 1,3,5-Trimethylbenzene <0.40 ug/L 1.0 0.40 1 10/28/11 17:14 108-67-8 m&p-Xylene <0.87 ug/L 2.0 0.87 1 10/28/11 17:14 179601-23-1 <0.38 ug/L o-Xvlene 1.0 0.38 1 10/28/11 17:14 95-47-6 a,a,a-Trifluorotoluene (S) 102 %. 80-120 10/28/11 17:14 98-08-8 Sample: TRIP BLANK Lab ID: 4052827003 Collected: 10/26/11 09:00 Received: 10/27/11 10:05 Matrix: Water Parameters Results Units LOQ LOD DF Prepared CAS No. Qual Analyzed WIGRO GCV Analytical Method: WI MOD GRO Benzene <0.39 ug/L 0.39 10/28/11 17:38 71-43-2 Ethylbenzene <0.41 ug/L 1.0 0.41 10/28/11 17:38 100-41-4 Methyl-tert-butyl ether <0.38 ug/L 1.0 0.38 10/28/11 17:38 1634-04-4 Toluene <0.42 ug/L 1.0 0.42 10/28/11 17:38 108-88-3 1,2,4-Trimethylbenzene <0.43 ug/L 1.0 0.43 10/28/11 17:38 95-63-6 1 1,3,5-Trimethylbenzene <0.40 ug/L 1.0 0.40 1 10/28/11 17:38 108-67-8 10/28/11 17:38 179601-23-1 m&p-Xylene <0.87 ug/L 2.0 0.87 1

Date: 10/31/2011 03:32 PM

a,a,a-Trifluorotoluene (S)

o-Xylene

#### REPORT OF LABORATORY ANALYSIS

1.0

80-120

0.38

1

<0.38 ug/L

101 %.

10/28/11 17:38 95-47-6

10/28/11 17:38 98-08-8





#### **QUALITY CONTROL DATA**

Project:

114-340632-200 J.C DITCH WATER

Pace Project No.:

4052827

QC Batch:

GCV/7510

Analysis Method:

WI MOD GRO

QC Batch Method:

WI MOD GRO

Analysis Description:

WIGRO GCV Water

Associated Lab Samples:

4052827001, 4052827002, 4052827003

METHOD BLANK: 525885

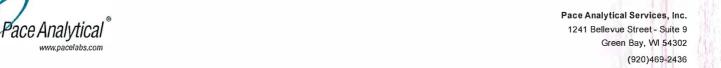
Matrix: Water

Associated Lab Samples:

4052827001, 4052827002, 4052827003

		Blank	Reporting		
Parameter	Units	Result	Limit	Analyzed	Qualifiers
1,2,4-Trimethylbenzene	ug/L	<0.43	1.0	10/28/11 09:00	
1,3,5-Trimethylbenzene	ug/L	< 0.40	1.0	10/28/11 09:00	
Benzene	ug/L	< 0.39	1.0	10/28/11 09:00	
Ethylbenzene	ug/L	< 0.41	1.0	10/28/11 09:00	
m&p-Xylene	ug/L	<0.87	2.0	10/28/11 09:00	
Methyl-tert-butyl ether	ug/L	< 0.38	1.0	10/28/11 09:00	
o-Xylene	ug/L	< 0.38	1.0	10/28/11 09:00	
Toluene	ug/L	< 0.42	1.0	10/28/11 09:00	
a,a,a-Trifluorotoluene (S)	%.	102	80-120	10/28/11 09:00	

LABORATORY CONTROL SAM	IPLE & LCSD: 525886		52	25887					
		Spike	LCS	LCSD	LCS	LCSD	% Rec		Max
Parameter	Units	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD Qualifiers
1,2,4-Trimethylbenzene	ug/L	20	21.6	20.7	108	104	80-120	4	20
1,3,5-Trimethylbenzene	ug/L	20	21.3	20.3	107	101	80-120	5	20
Benzene	ug/L	20	22.5	21.6	113	108	80-120	4	20
Ethylbenzene	ug/L	20	21.4	20.4	107	102	80-120	5	20
m&p-Xylene	ug/L	40	43.0	40.8	107	102	80-120	5	20
Methyl-tert-butyl ether	ug/L	20	21.3	20.8	106	104	80-120	2	20
o-Xylene	ug/L	20	21.6	20.6	108	103	80-120	5	20
Toluene	ug/L	20	21.7	20.8	108	104	80-120	4	20
a,a,a-Trifluorotoluene (S)	%.				103	102	80-120		



#### **QUALIFIERS**

Project: 114-340632-200 J.C DITCH WATER

Pace Project No.: 4052827

#### **DEFINITIONS**

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

**DUP - Sample Duplicate** 

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

#### **BATCH QUALIFIERS**

Batch: GCV/7510

[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.





#### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project:

114-340632-200 J.C DITCH WATER

Pace Project No.: 4052827

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
4052827001	DITCH WATER NORTH	WI MOD GRO	GCV/7510	- 1	
4052827002	DITCH WATER SOUTH	WI MOD GRO	GCV/7510		A RATE OF THE
4052827003	TRIP BLANK	WI MOD GRO	GCV/7510		

(F	Please Print Clearly)		]									EST REG			Page 1	of
Company Name:	TETRA TECH				_/	_						-1700 <b>W</b>	1: 920-469-2436			$\sim$
Branch/Location:	ScHOFIELD U	51	1 /		Pace		lytical '			JY/	7				4n52	821
Project Contact:	GEEG ALDER	MON	1 /			www.pi	ecelabs.com						Quote #:			
Phone:	715-551-912	2/	1 '		CHA	IN	OF (	CUS	STO	DY	•		Mail To Contact:	GNZ.	6 ALDE	PIAN
Project Number:	114-340632-2	200	A=N		HCL C=		*Preservation					l İ	Mail To Company:	T	-	
Project Name:	J.C. DITCH W.			odium Bisu			I≈Sodium Thio		J=Other				Mail To Address:	540	4 ALLES	2900V 97
Project State:	1121			ERED? S/NO)	Y/W	N								ScHo	FIELD W	1 54476
Sampled By (Print	: 6ng ALDRI	IAN	PRESE	RVATION DDE)*	Pick Letter	B			<del>-   .</del>				Invoice To Contact:		1	1 0 0 00
Sampled By (Sign	<u> </u>	•	L_"	iue;				-				1	nvoice To Company:		5 M/ L	
PO #:	R	egulatory		•	13								Invoice To Address:	9	KVVI -	
Data Package C		rogram: Mat	rix Code	s									5.00 . 0 Fadi 600,			
(biliable)  EPA Lev	On your sample A=		W = Water DW = Drink		N. Regi	U										
☐ EPALev	el IV NOT needed on O=		GW = Grou SW = Surfa	nd Water ce Water	Š	8							Invoice To Phone:			
	your sample SI=	Soil : Sludge   COLL	WW ≍ Was WP = Wipe ECTION	<del>'</del>	\$	<u>a</u>							CLIENT		OMMENTS	Profile #
PACE LAB'#	CLIENT FIELD ID	DATE	TIME	MATRIX		-		_		<u> </u>			COMMENTS		Use Only)	
	<del></del>		1.				ļ			<u> </u>			3 UOA	3-40	WU 13	
	ZH LUATTE SOUTH	10/26	110	BW		/				-			300A	W.		· · · · · ·
003 T	RIP BLANK	10/26	9:00	W						<u> </u>		/	UDA	1-40	Jul 13_	
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	subject to approval/surcharge) ite Needed:	Relin	quishartes	1/100	MC		1/ / Pare/1/7	le: 11	V/C	Receive	12:-/	20	Qate/Time:	135	1405	1201
Transmit Prelim R	ush Results by (complete what you war		quished By:	III		4	Date/Tin		<i>!())</i>	Receiv	<u> 1</u> /3/		Date/Time:	7-0)	Receipt Temp =	DD) °
Email #1:		- Proliti	iquisiieu dy:	·			r Date: III			1,000	- J. U		, Date inflet		Sample R	- '
Telephone:		Relin	quished By:	-			Date/Tin	ne:		Receive	d By:		Date/Time:		OK / Ad Cooler Cus	
,F-2-5-										1						ot Present

Mana Apply displ							
Pace Analytical Client Name:	: <u>Te</u>	tra	ide	ch	Pr	oject#	52827
Courier: Fed Ex TUPS TUSPS TO		_			Other		
Tracking #:				<del></del>			
Custody Seal on Cooler/Box Present: $\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \$	no	)	Seals	intact: 🔲 yes 📙	☐ no	(Oigilora)	
	no			intact: 🔲 yes	∏ no		CDAG
	ble Bag			Other		<i>i</i>	ne:
Thermometer Used			<i>v</i> ,	Blue Dry Norie is Frozen;  yes		Samples on ice, cooling	g process has begun
Cooler Temperature	DIOIOG	jicai i	149 <del>0</del> Ue	is Frozenz [ ye.		B	44
Temp Blank Present:  yes no Temp should be above freezing to 6% for all sample exc	ont Diete			•		Person examining co	ontenis:
Biota Samples should be received ≤ 0°C.	ері Біоіа.	•		Comments:		Initials:	
Chain of Custody Present:	□ Nes	□No	□n/a	1.			
Chain of Custody Filled Out:	Yes	□No	□n/a	2.			
Chain of Custody Relinquished:	Yes	□No	□n/a	3.			
Sampler Name & Signature on COC:	Yes	□No	□N⁄A	4.			
Samples Arrived within Hold Time:	JZYes	□No	□n/a	5.			
Short Hold Time Analysis (<72hr):	□Yes	ΠNο	□n/a	6.			
Rush Turn Around Time Requested:	□Yes	ĊΝο	□n/a	7.			
Sufficient Volume:	Yes	□No	□n/a	8. ·			
Correct Containers Used:	Yes	□No	□n/a	9.			
-Pace Containers Used:	Yes	□No	□n/a				
Containers Intact:	Ves	□No	□n/a	10.			
Filtered volume received for Dissolved tests	✓	<b>□</b> ‰	□n/a	11.			
Sample Labels match COC:	Yes	□No	□n/a	12.			
-Includes date/time/ID/Analysis Matrix:	11	<u>)                                    </u>					
All containers needing preservation have been checked.	□Yes	□No	<b>DN/A</b>	13			
All containers needing prese vation are found to be in	_	_	1	10.			
compliance with EPA recommendation.	□Yes	⊔No	ZIN/A	Initial when	•	ILot # of added	
exceptions: VOA, coliform, TOC, O&G, WI-DRO (water)	□Yes	□No		completed		preservative	
Samples checked for dechlorination:	□Yes	□No	[JKVA	14.			
Headspace in VOA Vials ( >6mm):	□Yes	DN0	ON/A	15.			
Trip Blank Present:	Ves	□N₀	□N⁄A	16.			
Trip Blank Custody Seals Present	Yes	ÓN₀	□n/a				•
Pace Trip Blank Lot # (if purchased):							
Client Notification/ Resolution:			D-1-1	T:		Field Data Required?	Y / N
Person Contacted:Comments/ Resolution:			_Date/	ı ime:		titi waxaa yaa	
Commentor Resolution.							
- <u> </u>							
Project Manager Review:		60	<u> </u>	•,		Date:	10-27-11
Note: Whenever there is a discrepancy affecting North Carolina of incorrect preservative, out of temp, incorrect containers)	ompliance	Sample Sample	s, a cop	y of this fon n will be sent	t to the N	lorth Carolina DEHNR Cert	ification Office (i.e out of hold,





September 23, 2011

Marsha Meurette Tetra Tech, INC. 5404 Alderson St Suite 1 Schofield, WI 54476

RE: Project: 114-340632-200 J.C.DITCH WATER

Pace Project No.: 4051088

### Dear Marsha Meurette:

Enclosed are the analytical results for sample(s) received by the laboratory on September 20, 2011. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards, where applicable, unless otherwise narrated in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Brian Basten

brian.basten@pacelabs.com

Project Manager

Enclosures







### **CERTIFICATIONS**

Project:

114-340632-200 J.C.DITCH WATER

Pace Project No.:

4051088

### **Green Bay Certification IDs**

1241 Bellevue Street, Green Bay, WI 54302 Florida/NELAP Certification #: E87948 Illinois Certification #: 200050 Kentucky Certification #: 82 Louisiana Certification #: 04168 Minnesota Certification #: 055-999-334 New York Certification #: 11888

North Carolina Certification #: 503 North Dakota Certification #: R-150 South Carolina Certification #: 83006001 US Dept of Agriculture #: S-76505 Wisconsin Certification #: 405132750 Wisconsin DATCP Certification #: 105-444





### **SAMPLE SUMMARY**

Project:

114-340632-200 J.C.DITCH WATER

Pace Project No.:

4051088

Lab ID	Sample ID	Matrix	Date Collected	Date Received
4051088001	DITCH WATER NORTH	Water	09/19/11 10:42	09/20/11 16:10
4051088002	DITCH WATER SOUTH	Water	09/19/11 10:50	09/20/11 16:10
4051088003	TRIP BLANK	Water	09/19/11 10:00	09/20/11 16:10





### **SAMPLE ANALYTE COUNT**

Project:

114-340632-200 J.C.DITCH WATER

Pace Project No.:

4051088

Lab ID	Sample ID	Method	Analysts	Analytes Reported
4051088001	DITCH WATER NORTH	WI MOD GRO	SES	9
4051088002	DITCH WATER SOUTH	WI MOD GRO	SES	9
4051088003	TRIP BLANK	WI MOD GRO	SES	9



### **ANALYTICAL RESULTS**

Project:

114-340632-200 J.C.DITCH WATER

Pace Project No.: 4051088

Sample: DITCH WATER NORTH	Lab ID: 4	4051088001	Collected	09/19/1	1 10:42	Received: 0	9/20/11 16:10	Matrix: Water	
Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
WIGRO GCV	Analytical N	Method: WI Mo	OD GRO						
Benzene	< <b>7.8</b> ug	/L	20.0	7.8	20		09/22/11 14:3	34 71-43-2	
Ethylbenzene	<8.3 ug	/L	20.0	8.3	20		09/22/11 14:3	4 100-41-4	
Methyl-tert-butyl ether	<7.6 ug	/L	20.0	7.6	20		09/22/11 14:3	4 1634-04-4	
Toluene	<b>&lt;8.3</b> ug	/L	20.0	8.3	20		09/22/11 14:3	4 108-88-3	
1,2,4-Trimethylbenzene	<b>&lt;8.6</b> ug/	/L	20.0	8.6	20		09/22/11 14:3	4 95-63-6	
1,3,5-Trimethylbenzene	< <b>7.9</b> ug	/L	20.0	7.9	20		09/22/11 14:3	4 108-67-8	
m&p-Xylene	<17.4 ug/	/L	40.0	17.4	20		09/22/11 14:3	4 179601-23-1	
o-Xylene	<7.6 ug/	/L	20.0	7.6	20		09/22/11 14:3	4 95-47-6	
a,a,a-Trifluorotoluene (S)	103 %.		80-120		20		09/22/11 14:3	4 98-08-8	F1
Sample: DITCH WATER SOUTH	Lab ID: 4	051088002	Collected:	09/19/11	10:50	Received: 0	9/20/11 16:10	Matrix: Water	
Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
WIGRO GCV	Analytical M	lethod: WI MC	DD GRO						
Benzene	<b>&lt;0.39</b> ug/	′L	1.0	0.39	1		09/22/11 14:0	9 71-43-2	
Ethylbenzene	<0.41 ug/		1.0	0.41	1		09/22/11 14:0		
Methyl-tert-butyl ether	<0.38 ug/		1.0	0.38	1		09/22/11 14:0	9 1634-04-4	
Toluene	<0.42 ug/		1.0	0.42	1		09/22/11 14:0	9 108-88-3	
1,2,4-Trimethylbenzene	<0.43 ug/	'L	1.0	0.43	1		09/22/11 14:0	9 95-63-6	
1,3,5-Trimethylbenzene	<0.40 ug/	'L	1.0	0.40	1		09/22/11 14:0	9 108-67-8	
m&p-Xylene	<0.87 ug/	'L	2.0	0.87	1		09/22/11 14:0	9 179601-23-1	
o-Xylene	<0.38 ug/	'L	1.0	0.38	1		09/22/11 14:0	9 95-47-6	
a,a,a-Trifluorotoluene (S)	103 %.		80-120		1		09/22/11 14:0	9 98-08-8	
Sample: TRIP BLANK	Lab iD: 4	051088003	Collected:	09/19/11	10:00	Received: 09	9/20/11 16:10 I	Matrix: Water	
Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
WIGRO GCV	Analytical M	lethod: WI MC	DD GRO						
Benzene	<b>&lt;0.39</b> ug/	L	1.0	0.39	1		09/22/11 13:4	4 71-43-2	
Ethylbenzene	<0.41 ug/		1.0	0.41	1		09/22/11 13:4	4 100-41-4	
Methyl-tert-butyl ether	<0.38 ug/		1.0	0.38	1		09/22/11 13:4		
Toluene	<0.42 ug/	L	1.0	0.42	1		09/22/11 13:4	4 108-88-3	
1,2,4-Trimethylbenzene	<0.43 ug/	L	1.0	0.43	1		09/22/11 13:4	4 95-63-6	
1,3,5-Trimethylbenzene	<b>&lt;0.40</b> ug/		1.0	0.40	1		09/22/11 13:4	4 108-67-8	
m&p-Xylene	<0.87 ug/		2.0	0.87	1			4 179601-23-1	
παρ-∧yiene	10.01 agr	L	2.0	0.07			03/22/11 13.4	7 173001-23-1	
o-Xylene	<0.38 ug/		1.0	0.87	1		09/22/11 13:4		





### **QUALITY CONTROL DATA**

Project:

114-340632-200 J.C.DITCH WATER

Pace Project No.:

4051088

QC Batch:

GCV/7234

Analysis Method:

WI MOD GRO

QC Batch Method:

WI MOD GRO

Analysis Description:

WIGRO GCV Water

Associated Lab Samples:

4051088001, 4051088002, 4051088003

METHOD BLANK: 505819

Matrix: Water

Associated Lab Samples:

4051088001, 4051088002, 4051088003

		Blank	Reporting		
Parameter	Units	Result	Limit	Analyzed	Qualifiers
1,2,4-Trimethylbenzene	ug/L	<0.43	1.0	09/22/11 08:43	
1,3,5-Trimethylbenzene	ug/L	<0.40	1.0	09/22/11 08:43	
Benzene	ug/L	< 0.39	1.0	09/22/11 08:43	
Ethylbenzene	ug/L	<0.41	1.0	09/22/11 08:43	
m&p-Xylene	ug/L	<0.87	2.0	09/22/11 08:43	
Methyl-tert-butyl ether	ug/L	<0.38	1.0	09/22/11 08:43	
o-Xylene	ug/L	<0.38	1.0	09/22/11 08:43	
Toluene	ug/L	<0.42	1.0	09/22/11 08:43	
a,a,a-Trifluorotoluene (S)	%.	103	80-120	09/22/11 08:43	

LABORATORY CONTROL SAM	IPLE & LCSD: 505820		50	)5821						
Darameter	Haita	Spike	LCS	LCSD	LCS	LCSD	% Rec	DDD	Max	Ovelifiere
Parameter	Units	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qualifiers
1,2,4-Trimethylbenzene	ug/L	20	21.2	21.8	106	109	80-120	3	20	
1,3,5-Trimethylbenzene	ug/L	20	21.0	21.4	105	107	80-120	2	20	
Benzene	ug/L	20	21.7	22.4	109	112	80-120	3	20	
Ethylbenzene	ug/L	20	21.1	21.5	105	107	80-120	2	20	
m&p-Xylene	ug/L	40	41.9	42.4	105	106	80-120	1	20	
Methyl-tert-butyl ether	ug/L	20	20.6	22.0	103	110	80-120	6	20	
o-Xylene	ug/L	20	21.0	21.3	105	107	80-120	1	20	
Toluene	ug/L	20	21.2	21.7	106	109	80-120	3	20	
a,a,a-Trifluorotoluene (S)	%.				103	103	80-120			





### **QUALIFIERS**

Project:

114-340632-200 J.C.DITCH WATER

Pace Project No.:

4051088

### **DEFINITIONS**

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

**DUP** - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

### **BATCH QUALIFIERS**

Batch: GCV/7234

[M5]

A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

### **ANALYTE QUALIFIERS**

F1 The sample was analyzed at a dilution due to foaming of the sample in the purge vessel.





### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project:

114-340632-200 J.C.DITCH WATER

Pace Project No.:

4051088

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
4051088001	DITCH WATER NORTH	WI MOD GRO	GCV/7234		
4051088002	DITCH WATER SOUTH	WI MOD GRO	GCV/7234		
4051088003	TRIP BLANK	WI MOD GRO	GCV/7234		

(Please Print Clearly) **UPPER MIDWEST REGION** MN: 612-607-1700 WI: 920-469-2436 Company Name: Branch/Location: Quote #: Project Contact: **CHAIN OF CUSTODY** Phone: Mail To Contact: Project Number: Mail To Company: B=HCL C=H2SO4 D=HNO3 E=DIWater F=Methanol G=NaOH H=Sodium Bisulfate Solution I=Sodium Thiosulfate J=Other Project Name: DITCH WATER Mail To Address: FILTERED? YIN N SCHOFIELD WI54476 Project State: (YES/NO) PRESERVATION Pick Letter 13 CREG ALDRIAN Sampled By (Print): Invoice To Contact: (CODE)\* Sampled By (Sign): Invoice To Company: Regulatory PO #: Invoice To Address: Program: **Matrix Codes Data Package Options** MS/MSD (billable) On your sample DW = Drinking Water EPA Level III 715-355-4180 (billable) Invoice To Phone: GW = Ground Water 2 SW = Surface Water NOT needed on EPA Level IV WW = Waste Water LAB COMMENTS your sample **CLIENT** Profile # WP = Wipe PACE LAB'# **CLIENT FIELD ID** COMMENTS (Lab Use Only) DITCH WATER NOTHY/1910.925W 3-40m20 Bul DITCH WATER SOUTH \$119 10:56W 002 2-40mil 002 TRIP REANK Rush Turnaround Time Requested - Prelims Relinquished By: (Rush TAT subject to approval/surcharge) Date Needed: Transmit Prelim Rush Results by (complete what you want): Receipt Temp = ROZ Emall #1: Relinquished By: Date/Time: Received By: Date/Time: Emall #2: Sample Receipt pH Telephone: OK / Adjusted Relinquished By: Date/Time: Received By: Date/Time: Fax: Cooler Custody Seal Present / Not Present Samples on HOLD are subject to Relinquished By: Date/Time: Received By: Date/Time: special pricing and release of liability Intact / Not Intact Version 6.0 06/14/06

Pace Analytical Services, Inc. 1241 Bellevue Street, Suite 9 Green Bay, WI 54302

### **Sample Condition Upon Receipt**

Note: Whenever there is a discrepancy affecting North Carolina	compliance sample	es, a copy	d this form will be se	nt to the N	orth Carolina DEH	NR Certification Office (i.e out of h
Project Manager Review:	B				Date:	9-20-11
	•					
	•					
Person Contacted: Comments/ Resolution:		_Date/T	ime:			
Client Notification/ Resolution:		D-4-77			Field Data Red	quired? Y / N
Pace Trip Blank Lot # (if purchased):						
Trip Blank Custody Seals Present	ØYes □No	□N/A				
Trip Blank Present:	ZY95 □No	_ □N/A	16.			
Headspace in VOA Vials ( >6mm):	□Yes □No	ŪN⁄A	15.			
Samples checked for dechlorination:	□Yes □No	NA	14.		•	
exceptions: VOA, coliform, TOC, O&G, WI-DRO (water)	☐Yes ☐No	امر	completed		preservative	•
compliance with EPA recommendation.	□Yes □No	I.	Initial when		Lot # of added	
All containers needing preservation are found to be in		_	10.			
All containers needing preservation have been checked.	□Yes □No	DINA	13			
-Includes date/time/ID/Analysis Matrix:	ัฟ	_				
Sample Labels match COC:	Yes, ONO					
Filtered volume received for Dissolved tests	□Yes □No				•	
Containers Intact:	Yes ONO		10.			
-Pace Containers Used:	ZYes □No					
Correct Containers Used:	Yes UNo					
Sufficient Volume:	ØYes □No					
Rush Turn Around Time Requested:	□Yes □No					
Short Hold Time Analysis (<72hr):	□Yes ZNo					
Samples Arrived within Hold Time:	Yes □No			•	-	
Sampler Name & Signature on COC:	Yes ONo		•			
Chain of Custody Relinquished:	Yes ONo					
Chain of Custody Filled Out:	Yes ONo					•
Chain of Custody Present:	Yes □No	I				
Temp should be above freezing to 6°C for all sample exc Biota Samples should be received ≤ 0°C.	cept Biota.	(	Comments:		Initials:	And the second s
Temp Blank Present: yes no		•	j <del>e</del> no	)	Person examin	5
Cooler Temperature	Biological T	issue i	s Frozen: 🗂 🗸			:
Thermometer Used ————————————————————————————————————	, ,		Blue Dry None	N. S.	Samples on ice	, cooling process has begun
Packing Material:   Bubble Wrap Bub	ble Bags	None	Other			oj <b>alvam</b> e vu
Custody Seal on Samples Present: f yes	no	Seals in	ntact:	L uo	Ē.	Noue Date:
Custody Seal on Cooler/Box Present:	ло	Seals in	ntact: [ yes	r no	Ø¢.	(ionalk syza)
Tracking #:	_		, i race	011101		
Courier:   Fed Ex   UPS   USPS	_			 Other		
Client Name	Tetra.	Tau	ı	Pro	oject #	4051088
: JALPHUAUUU AI						

incorrect preservative, out of temp, incorrect containers)





October 04, 2011

Marsha Meurette Tetra Tech, INC. 5404 Alderson St Suite 1 Schofield, WI 54476

RE: Project: 114-340632-200 J.C.DITCH WATER

Pace Project No.: 4051581

### Dear Marsha Meurette:

Enclosed are the analytical results for sample(s) received by the laboratory on September 30, 2011. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards, where applicable, unless otherwise narrated in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Brian Basten

brian.basten@pacelabs.com

Project Manager

Enclosures





Pace Analytical Services, Inc. 1241 Bellevue Street - Suite 9 Green Bay, WI 54302 (920)469-2436

### **CERTIFICATIONS**

Project:

114-340632-200 J.C.DITCH WATER

Pace Project No.:

4051581

**Green Bay Certification IDs** 

1241 Bellevue Street, Green Bay, WI 54302 Florida/NELAP Certification #: E87948 Illinois Certification #: 200050 Kentucky Certification #: 82 Louisiana Certification #: 04168 Minnesota Certification #: 055-999-334 New York Certification #: 11888 North Carolina Certification #: 503 North Dakota Certification #: R-150 South Carolina Certification #: 83006001 US Dept of Agriculture #: S-76505 Wisconsin Certification #: 405132750 Wisconsin DATCP Certification #: 105-444





### **SAMPLE SUMMARY**

Project:

114-340632-200 J.C.DITCH WATER

Pace Project No.: 4051581

Lab ID	Sample ID	Matrix	Date Collected	Date Received
4051581001	DITCH WATER NORTH	Water	09/29/11 11:10	09/30/11 11:00
4051581002	DITCH WATER SOUTH	Water	09/29/11 11:15	09/30/11 11:00
4051581003	TRIP BLANK	Water	09/29/11 10:00	09/30/11 11:00





### **SAMPLE ANALYTE COUNT**

Project:

114-340632-200 J.C.DITCH WATER

Pace Project No.: 4051581

Lab ID	Sample ID	Method	Analysts	Analytes Reported
4051581001	DITCH WATER NORTH	WI MOD GRO	SES	9
4051581002	DITCH WATER SOUTH	WI MOD GRO	SES	9
4051581003	TRIP BLANK	WI MOD GRO	SES	9



### **ANALYTICAL RESULTS**

Project:

114-340632-200 J.C.DITCH WATER

Pace Project No.:

4051581

Sample: DITCH WATER NORTH	Lab ID:	4051581001	Collecte	d: 09/29/1	1 11:10	Received: 0	9/30/11 11:00 N	latrix: Water	
Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
WIGRO GCV	Analytica	al Method: WI M	OD GRO						
Benzene	<0.39	ug/L	1.0	0.39	1		10/03/11 16:53	71-43-2	
Ethylbenzene	<0.41	ug/L	1.0	0.41	1		10/03/11 16:53	100-41-4	
Methyl-tert-butyl ether	<0.38	ug/L	1.0	0.38	1		10/03/11 16:53	1634-04-4	
Toluene	<0.42	ug/L	1.0	0.42	1		10/03/11 16:53	108-88-3	
1,2,4-Trimethylbenzene	<0.43	ug/L	1.0	0.43	1		10/03/11 16:53		
1,3,5-Trimethylbenzene	<0.40	ug/L	1.0	0.40	1		10/03/11 16:53	108-67-8	
m&p-Xylene	<0.87	ug/L	2.0	0.87	1		10/03/11 16:53	179601-23-1	
o-Xylene	<0.38		1.0	0.38	1		10/03/11 16:53	95-47-6	
a,a,a-Trifluorotoluene (S)	103	%.	80-120		1		10/03/11 16:53	98-08-8	
Sample: DITCH WATER SOUTH	Lab iD:	4051581002	Collected	d: 09/29/1	1 11:15	Received: 09	9/30/11 11:00 M	atrix: Water	
Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
WIGRO GCV	Analytica	Method: WI M	DD GRO						
Benzene	<b>&lt;0.39</b> t	ıa/L	1.0	0.39	1		10/03/11 17:18	71-43-2	
Ethylbenzene	<b>&lt;0.41</b> t	•	1.0	0.41	1		10/03/11 17:18		
Methyl-tert-butyl ether	<b>&lt;0.38</b> t		1.0	0.38	1		10/03/11 17:18		
Toluene	<b>&lt;0.42</b> t	•	1.0	0.42	1		10/03/11 17:18	108-88-3	
1,2,4-Trimethylbenzene	<b>&lt;0.43</b> t	•	1.0	0.43	1		10/03/11 17:18		
1,3,5-Trimethylbenzene	<b>&lt;0.40</b> t	ıg/L	1.0	0.40	1		10/03/11 17:18		
m&p-Xylene	<b>&lt;0.87</b> ≀	ıg/L	2.0	0.87	1		10/03/11 17:18	179601-23-1	
o-Xylene	<b>&lt;0.38</b> ≀	ıg/L	1.0	0.38	1		10/03/11 17:18		
a,a,a-Trifluorotoluene (S)	103 9	•	80-120		1		10/03/11 17:18		
Sample: TRIP BLANK	Lab ID:	4051581003	Collected	i: 09/29/11	10:00	Received: 09	0/30/11 11:00 Ma	atrix: Water	
Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
WIGRO GCV	Analytical	Method: WI MC	DD GRO						
Benzene	< <b>0.39</b> u	ıg/L	1.0	0.39	1		10/03/11 17:43	71-43-2	
Ethylbenzene	<b>&lt;0.41</b> u	•	1.0	0.41	1		10/03/11 17:43	100-41-4	
Methyl-tert-butyl ether	<b>&lt;0.38</b> u	•	1.0	0.38	1		10/03/11 17:43	1634-04-4	
Toluene	<b>&lt;0.42</b> u	•	1.0	0.42	1		10/03/11 17:43		
1,2,4-Trimethylbenzene	<b>&lt;0.43</b> u	•	1.0	0.43	1		10/03/11 17:43	95-63-6	
1,3,5-Trimethylbenzene	<b>&lt;0.40</b> u	· ·	1.0	0.40	1		10/03/11 17:43		
m&p-Xylene	<b>&lt;0.87</b> u	•	2.0	0.87	1		10/03/11 17:43		
o-Xylene	<b>&lt;0.38</b> u	•	1.0	0.38	1		10/03/11 17:43		
o Aylono	-0.00 u	9/L	1.0	0.50			10/03/11 17.43	90-47-0	



### **QUALITY CONTROL DATA**

Project:

114-340632-200 J.C.DITCH WATER

Pace Project No.:

4051581

QC Batch:

GCV/7330

Analysis Method:

WI MOD GRO

QC Batch Method:

WI MOD GRO

Analysis Description:

WIGRO GCV Water

Associated Lab Samples:

4051581001, 4051581002, 4051581003

METHOD BLANK: 511524

Matrix: Water

Associated Lab Samples:

4051581001, 4051581002, 4051581003

		Blank	Reporting		
Parameter	Units	Result	Limit	Analyzed	Qualifiers
1,2,4-Trimethylbenzene	ug/L	<0.43	1.0	10/03/11 12:54	
1,3,5-Trimethylbenzene	ug/L	<0.40	1.0	10/03/11 12:54	
Benzene	ug/L	<0.39	1.0	10/03/11 12:54	
Ethylbenzene	ug/L	<0.41	1.0	10/03/11 12:54	
m&p-Xylene	ug/L	<0.87	2.0	10/03/11 12:54	
Methyl-tert-butyl ether	ug/L	<0.38	1.0	10/03/11 12:54	
o-Xylene	ug/L	<0.38	1.0	10/03/11 12:54	
Toluene	ug/L	<0.42	1.0	10/03/11 12:54	
a,a,a-Trifluorotoluene (S)	%.	103	80-120	10/03/11 12:54	

LABORATORY CONTROL SAM	PLE & LCSD: 511525	11526								
		Spike	LCS	LCSD	LCS	LCSD	% Rec		Max	
Parameter	Units	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qualifiers
1,2,4-Trimethylbenzene	ug/L	20	21.8	21.8	109	109	80-120	.07	20	
1,3,5-Trimethylbenzene	ug/L	20	21.5	21.7	108	108	80-120	.7	20	
Benzene	ug/L	20	22.2	23.0	111	115	80-120	4	20	
Ethylbenzene	ug/L	20	21.7	22.1	109	110	80-120	2	20	
m&p-Xylene	ug/L	40	43.1	43.6	108	109	80-120	1	20	
Methyl-tert-butyl ether	ug/L	20	21.8	22.4	109	112	80-120	3	20	
o-Xylene	ug/L	20	21.7	21.9	108	109	80-120	1	20	
Toluene	ug/L	20	21.7	22.2	109	111	80-120	2	20	
a,a,a-Trifluorotoluene (S)	%.				102	102	80-120			



Pace Analytical Services, Inc. 1241 Bellevue Street - Suite 9 Green Bay, WI 54302 (920)469-2436

### **QUALIFIERS**

Project:

114-340632-200 J.C.DITCH WATER

Pace Project No.:

4051581

### **DEFINITIONS**

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

**DUP - Sample Duplicate** 

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

### **BATCH QUALIFIERS**

Batch: GCV/7330

[M5]

A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.





### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project:

114-340632-200 J.C.DITCH WATER

Pace Project No.: 4051581

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
4051581001	DITCH WATER NORTH	WI MOD GRO	GCV/7330		
4051581002	DITCH WATER SOUTH	WI MOD GRO	GCV/7330		
4051581003	TRIP BLANK	WI MOD GRO	GCV/7330		

Pace Analytical Services, Inc. 1241 Bellevue Street, Suite 9 Green Bay, WI 54302

incorrect preservative, out of temp, incorrect containers)

PATT CONCE OF CONCESSOR OF THE

## Sample Condition Upon Receipt

Client Name.	Telle	160h PI	ojeci #	705(58)
Courier: Fed Ex TUPS TUSPS TO	Client Commerci	al Pace Other		
Tracking #:				
Custody Seal on Cooler/Box Present: yes	f no Seals i	ntact: // yes / no	Optional-	The second second
Custody Seal on Samples Present:	no Seals i	ntact: Tyes Tno	Prox Due	Dales
Packing Material: T Bubble Wrap / Bubb		e Other	ProgNam	
Thermometer Used MH	Type of Ice: Wet	•	Samples on ice, cooling	process has begun
Cooler Temperature	Biological Tissue			
Temp Blank Present: "yes 7 no		la uo	Person examining cont	ents!
Temp should be above freezing to 6°C for all sample exce Biota Samples should be received ≤ 0°C.		Comments:	Date:	
Chain of Custody Present:	Yes ONO ON/A	1.		
Chain of Custody Filled Out:	Z	2		
Chain of Custody Relinquished:	ØYes □No .□N/A			• .
Sampler Name & Signature on COC:	Tyres ONO ON/A		•	•
Samples Arrived within Hold Time:	Yes ONO ONA	•		
Short Hold Time Analysis (<72hr):	□Yes ZNo □N/A			· · · · · · · · · · · · · · · · · · ·
Rush Turn Around Time Requested:	□Yes ZNo □NA	7.		
Sufficient Volume:	Yes DNO DNA	·		
Correct Containers Used:	Zyes ONO ONA			
-Pace Containers Used:	Yes ONO ON/A			
Containers Intact:	Dres Ono Ona	1		
Filtered volume received for Dissolved tests	□Yes □No ØN/A		·	- N N-
Sample Labels match COC:	Yes ONO ONA		h .	
-Includes date/time/ID/Analysis Matrix:	(w)			
All containers needing preservation have been checked.	OYes ONO DINA	12		
All containers needing preservation are found to be in				
compliance with EPA recommendation.	□Yes □No □WA	Initial when	Lot # of added	
exceptions: VOA, coliform, TOC, O&G, WI-DRO (water)	□Yes □No	completed	preservative	·
Samples checked for dechlorination:	□Yes □No □NVA	14.		
Headspace in VOA Vials ( >6mm):	□Yës QNo □N/A			
Trip Blank Present:	OYes Ono ONA	1	•	•
Trip Blank Custody Seals Present	Øyes Ono On/A			4 .
Pace Trip Blank Lot # (if purchased):				
Client Notification/ Resolution:			Field Data Required?	Y / N
Person Contacted:	Date	Time:	•	
Comments/ Resolution:				
	••	<u> </u>		
<u> </u>				
Project Manager Review:			Date:	2-30-11

**UPPER MIDWEST REGION** (Please Print Clearly) MN: 612-607-1700 WI: 920-469-2436 Company Name: Branch/Location: Quote #: Project Contact: CHAIN OF CUSTODY Phone: **Mail To Contact:** Project Number: Mail To Company: B=HCL C=H2SO4 D=HNO3 E=Di Water F=Methanol G=NaOH H=Sodium Bisulfate Solution I=Sodium Thiosulfate J=Other Mail To Address: Project Name: FILTERED? YIN Project State: (YES/NO) PRESERVATION Pick Sampled By (Print) invoice To Contact: (CODE)\* Sampled By (Sign) Invoice To Company: BIRA TROH Requiatory PO #: SAME Invoice To Address: Program: Data Package Options (billable) MS/MSD Matrix Codes W = Water On your sample B = Biote DW = Drinking Water ☐ EPA Level III (billable) Invoice To Phone: C = Charcoal GW = Ground Water o = Oil SW = Surface Water ☐ EPA Level IV NOT needed on S = Soil WW = Waste Water LAB COMMENTS your sample CLIENT Profile # SI = Sludge WP = Wipe COLLECTION PACE LAB'# **CLIENT FIELD ID** COMMENTS (Lab Use Only) MATRIX DITCH WATER NORTHY TRIP BLANK 1000 Z U O A PACE Project No. Rush Turnaround Time Requested - Prelims Relinquished By: 5:00 (Rush TAT subject to approval/surcharge) Date Needed: Transmit Prelim Rush Results by (complete what you want): Receipt Temp = Email #1: Relinquished By: :mall #2: Sample Receipt pH Telephone: OK / Adjusted Relinquished By: Date/Time: Received By: Date/Time: Fax: Coeier Custody Seal Present / Not Present Samples on HOLD are subject to Refinquished By: Date/Time: Received By: Date/Time: Intact / Not Intact special pricing and release of liability



## Report of

Ditch Assessment
FHR - Junction City Fuel Terminal
Junction City, Wisconsin

**REC'D APR 3 0 2010** 

## Prepared for:

Flint Hills Resources, LP Attn: Mr. John Bale P.O. Box 64596 St. Paul, MN 55164-0596 651..480.3965

### Prepared by:

Tetra Tech 555 South 72<sup>nd</sup> Avenue Wausau, WI 54401 715.845.4100 Fax 715.842.0381

Tetra Tech Project No. 114-340316

April 14, 2010

complex world

**CLEAR SOLUTIONS**\*\*



April 14, 2010

Flint Hills Resources, LP Attn: Mr. John Bale P.O. Box 64596 St. Paul, MN 55164-0596

SUBJECT:

Ditch Assessment Report Flint Hills Resources, LP Junction City, Wisconsin

WDNR BRRTS #02-50-553760 Tetra Tech Project # 114-340316

Dear Mr. Bale:

Tetra Tech, Inc. (Tetra Tech), completed the assessment on the west property border/ditch area at Flint Hills Resources, LP's (FHR's) fuel terminal located in Junction City, Wisconsin. The assessment initially included surface water sampling, however more recent subsurface soil and groundwater sample collection and analysis was completed as part of a expanded effort to identify the potential source for surface water impacts. This work was performed as part of overall maintenance of the facility, and was completed in compliance with WDNR guidelines and requirements.

In addition, on behalf of FHR, we are forwarding a copy of this report to Ms. Lisa Gutknecht, WDNR project manager for the Junction City Terminal. A \$750.00 check to cover WDNR review fees is included with the WDNR copy of the report.

If you have any questions please feel free to contact me at (715) 845-4100.

Sincerely, TETRA TECH

Gregory M. Aldrian, P.G.

Program Manager

MAM/GMA:mam:prz

S:\ENV\KOCH\_FHR\JUNCTION CITY\Ditch Project\2009\JCT Ditch Env Assesmnt Rept-Draft 01-12-10.doc

CC:

Flint Hills Resources, LP Attn: Mr. Brad Stubbe 2267 STH 34 North Junction City, WI 54443 WDNR Attn: Ms. Lisa Gutknecht 5310 Rib Mountain Drive Wausau, WI 54401

Tetra Tech

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### 1.0 INTRODUCTION

Tetra Tech, Inc. (Tetra Tech), completed the assessment on a portion of the drainage ditch located on the western property boundary which comprises the east side of State Highway "34" at Flint Hills Resources, LP's (FHR's) fuel terminal located in Junction City, Wisconsin (Figures 1 & 2). This report details the initial investigatory and follow-up verification surface water sampling in the ditch and includes results from soil and groundwater samples collected from Geoprobe borings in the affected area. Photo documentation of the work area is also provided for reference. This work was performed as part of overall maintenance of the facility in conjunction with the STH "10" reconstruction efforts under the direction of the Wisconsin Department of Transportation (DOT) and was completed in compliance with Wisconsin Department of Natural Resources (WDNR) guidelines and requirements.

### 2.0 BACKGROUND

On April 25, 2008, the Junction City Terminal Manager received notification from a DOT Environmental Coordinator that a project manager had been walking the site as part of the STH "10" reconstruction, and had noticed "rust colored standing water" accompanied by "dead vegetation" in the drainage ditch immediately west of the FHR facility (Fig 2), requesting immediate notification to the WDNR. After additional correspondence between FHR personnel and DOT representatives, later that day Tetra Tech was directed to collect a surface water sample in the area identified as potentially affected as noted, performing ditch water sample collection in the early afternoon of April, 25, 2008. Upon receipt of analytical results on April 28, 2008 indicating impact by volatile organics, verification sampling was performed, collecting an additional surface water sample in the original location with an additional downstream sample obtained where the drainage exits FHR property. The WDNR was contacted on April 28, 2008 by FHR to report the incident as a possible spill, providing results from the April 25, 2008 sampling event. Results of the second sampling event were received on April 29<sup>th</sup> which again indicated volatile organics were present in surface water in the same location as the original sample, however downstream sampling results indicated surface water in this area remained unaffected. Results again were forwarded to the WDNR which prompted discussion with FHR as to potential source(s) of the identified impact, including prospective options for mitigation including the potential of placing rip-rap ballast rock in the ditch to facilitate aeration.

However, during the course of the on-going investigation, reconstruction of the STH "10" and "34" interchange was progressing, ultimately including the ditch area adjoining the FHR facility which was subject to re-grading, matting and reseeding with the work completed in August 2008. Anticipated mowing/maintenance operations in the newly re-vegetated ditch to be performed by the WDOT negated the option of the suggested stone rip-rap. Consequently the WDNR recommended two additional sampling events be performed, and based on these results potentially a "No Further Action" request could be submitted for regulatory review and project closure.

On October 8, 2008 the ditch sampling was again performed in the two prescribed locations. Results indicated volatile organics were not detected in either sample above respective method detection levels. A subsequent sampling event was performed on November 11, 2008 complying with regulatory recommendations in obtaining sequential samples to substantiate case closure objectives. However, results of the November sampling event again indicated the presence of volatile organics.

Consequently, additional sampling was recommended for the following month but with the onset of winter, had to be delayed, with WDNR concurrence, until spring thaw with sample collection completed on April 17, 2009. Results from the spring 2009 sampling event indicated volatile organics were not detected above the Method Detection Limit (MDL) in the original or downstream ditch sample. Table 1 includes all surface water results. The surface water analytical report is located in Appendix A. Photographs of the sample locations in addition to field conditions (prior to ditch reconstruction/grading) during the initial April 25, 2008 sampling event are provided in Appendix B.

During the spring/early summer of 2009, FHR and Tetra Tech in conjunction with WDNR personnel formulated a plan for remedial action that included raising the elevation and regrading the ditch area. During the final planning and approval stages of the proposed action, the WDNR reclassified the project necessitating it be closed in accordance with s. NR 726, requiring more extensive remedial investigation/site assessment prior to the implementation of remedial action and/or case closure request submittal.

As a result, Tetra Tech prepared a site investigation plan and upon regulatory concurrence and approval, performed an environmental site assessment on October 13, 2009. The investigation included obtaining an additional surface water sample and advancing Geoprobes in the ditch and highway shoulder/right-of-way areas to collect soil and groundwater samples for analysis. The results of these findings, including site figures, soil boring logs, tabularized historical sampling data, and chemical analysis of soil and water sampling reports are provided in the following sections.

### 3.0 GEOPROBE SUBSURFACE ASSESSMENT

On October 13, 2009 subsurface assessment was performed in the ditch area south of the FHR entrance drive where surface water impacts had been intermittently identified. The assessment included the installation of six soil geobrobe borings (GP-1 through GP-6) advanced to eight to nine feet below land surface (bls), collecting soil samples for screening with a photoionization detector (PID), and based on PID readings, submitting samples for chemical analysis of GRO and PVOC.

In addition, groundwater samples were collected from the respective geoprobe boreholes and submitted for analysis of GRO/PVOC. The general work area, including the boring locations, is depicted in Figure 3. Methods and procedures utilized to collect and analyze the soil and groundwater samples are provided in Appendix C. Soil boring logs including PID soil screening results are presented in Appendix D. Result of the chemical analysis are summarized on Tables 2 and 3 with analytical reports included in Appendix E. WDNR Soil Borehole Abandonment forms are provided in Appendix F.

In general, soils encountered in the six borings consisted of brown or grayish brown clayey sand or sandy clay. Rock fragments, gravel or weathered bedrock was encountered from 6 ft. to 9 ft. bls. Groundwater levels were measured in the borings ranging from 4 ft. to 8 ft. bls.; however, measured water depths were not indicative of static conditions and are not believed to represent current water table elevations.

PID field screening was performed on all six soil borings with readings obtained in approximate 2 foot sampling intervals and/or where soil layer changes were encountered as the boring progressed. Field screening results indicate Geoprobe borings GP-2 and GP-3 had PID readings greater than 10 units ranging from 10.1 units to 85 units in GP-2 and 163 units to 2561

units in GP-3. Consequently, samples were submitted for analytical verification (GRO/PVOC) from GP-2 and GP-3 in the soil interval exhibiting the highest PID reading.

Analytical results indicate that sample GP-2 (-6 ft.) had a GRO detection of 4.0 ppm, however all PVOC parameters were below their respective Limit of Quantitation. The sample analyzed from GP-3 (-3 ft.) had toluene detected at 151 parts per billion (ppb), with GRO and other PVOC analytes below their respective MDL. None of the detections in either boring exceed current NR 720 Generic Soil Clean-up Standards or, in the case of sample GP-3 (-3 ft.), the NR 746 Direct Contact Standard for impacted soil 4 feet or less bls.

Groundwater samples (GPW-1 through GPW-6) were obtained from the Geoprobe borings upon completion utilizing a peristaltic pump after allowing sufficient time for water to accumulate in the borehole. Samples were submitted for analysis of GRO/PVOC. In summation, groundwater analytical results indicate benzene (113 ppb to 1380 ppb) was detected in excess of NR 140 Groundwater Enforcement Standard (ES) in samples GPW-1 through GPW-4 with one or more additional PVOC parameter detected in excess of its respective NR 140 Preventative Action Limit (PAL) in monitoring wells GPW-1 and GPW-3. In addition, groundwater sample GPW-5 had benzene (1.1 ppb) and MTBE (16.3 ppb) in excess of their PAL; however sample GPW-6 did not have PVOC parameters detected above their respective laboratory limit of quantitation.

### 4.0 DISCUSSION AND CONCLUSIONS

Based on the data obtained as detailed in this report including surface water, groundwater, and soil sampling and analysis in conjunction with data obtained historically from the property, in consideration of it being subject to WDNR NR 726 conditional closure requirements (WDNR Case Closure Letter March 18, 2008) including GIS registry, Tetra Tech, on behalf of FHR concludes the following:

- The FHR Junction City facility received conditional site closure in March 2008 acknowledging groundwater impacts exceeding NR 140 ES were present on the FHR property, the adjoining DOT STH "34" right-of-way to the west, and on property acquired by WDOT to the west of STH "34". The geoprobe assessment was performed in an area delineated in prior investigation as having NR 140 ES exceedences and is included in the GIS registry.
- Soil identified in the geoprobes indicates soils encountered in the area of assessment consist primarily of sandy clay or clayey sand (SC), consistent with those encountered in the interior of the FHR facility. Impacted soil exceeding WDNR soil clean up standards was not encountered during this investigation. This would potentially indicate the surface water impacts are not a result of run-off or from a surface/shallow soil source commonly associated with a spill.
- The side/upgradient monitoring well MW-5 continues to exhibit NR 140 ES/PAL exceedences, including the most recent sampling events (May and December, 2009). Groundwater elevation data obtained from MW-5 indicates the static water level has historically been higher (1125.67 to 1121.45 feet above mean sea level (MSL)) than the surface elevation of the ditch located approximately 40 feet west of the well (1121.14 feet above MSL) and in the "North" surface water sampling location (1120.11). Historical assessment, including soil borings and hydrogeological evaluation has shown the predominantly clay soil at the site may act as an overlying confining layer, with groundwater or water-bearing soil typically encountered substantially below static water levels measured at monitoring wells. Consequently, if the confining layer is disturbed via excavation, grading etc, the replaced materials would likely be more permeable and allow migration of previously confined groundwater to the surface.

A graph depicting historical measured static watertable elevations in MW-5 is provided in Figure 4. The graph includes measured elevation data for land surface at the well, ditch directly west of MW-5, and in the approximate "North" surface water sample collection area. This graph would support artesian characteristics in the vicinity of the ditch and would indicate a potential for an intermittent discharge to surface water in the ditch.

- Surface water samples collected at the north end of the ditch had benzene concentrations ranging from 18 ppb to 89 ppb and most likely would be below any discharge standards established in NR105 for this type of surface water body.
- Surface water samples obtained in the downstream "South" sampling location have not had PVOC parameters detected in excess of their respective limit of detection. Consequently, the area of surface water affected is evidently localized with site conditions limiting or mitigating the migration of impacted water to the "South" sampling location near the end of the drainage prior to entering the culvert crossing STH "34".

### 5.0 RECOMMENDATIONS

Based upon results of this investigation Tetra Tech on behalf of FHR recommends raising the elevation of the ditch approximately three feet using compacted clay soil then regrading it to prevent it from having standing surface water during periods of prolonged precipitation. The regraded area will receive top soil, be seeded and mulched to prevent erosion. The area to be regraded will extend from visitor entrance south approximately 200 feet.

### 6.0 REMARKS

Information contained in this report represents our professional opinions. These opinions were arrived at in accordance with currently accepted hydrogeological and engineering practices at this time and location. Other than this, no warranty is implied or intended.

**TETRA TECH** 

This report was prepared by:

Cralg/A. Wieman

Senior Environmental Scientist

4-19-10

Dated

"I, Craig A. Wieman, hereby certify that I am a scientist as that term is defined in s. NR 712.03 (3), Wis. Adm. Code, and that to the best of my knowledge, all of the information contained in this document is correct and the document was prepared in compliance with all applicable requirements in chs. NR 700 to 726, Wis. Adm. Code."

This report was reviewed by:

Gregory M. Aldrian, P.G.

Program Manager

Dated

"I, Gregory M. Aldrian, hereby certify that I am a hydrogeologist as that term is defined in s. NR 712.03 (1), Wis. Adm. Code, and that to the best of my knowledge, all of the information contained in this document is correct and the document was prepared in compliance with all applicable requirements in chs. NR 700 to 726, Wis. Adm. Code."

CAW/MAM/GMA:caw/mam:prz

S:\ENV\KOCH\_FHR\JUNCTION CITY\Ditch Project\2009\JCT Ditch Env Assesmnt Rept-Final-04-13-10.doc



## TABLE 1 SURFACE WATER CHEMISTRY- DITCH SAMPLES FLINT HILLS RESOURCES, LP JUNCTION CITY, WISCONSIN TETRA TECH #114-340316.100

SAMPLE LOCATION			North	Ditch				South	Ditch		NR 140	NR 140 ES
DATE	4/25/08	4/28/08	10/8/08	11/12/08	4/17/09	10/13/09	4/28/08	10/8/08	11/12/08	4/17/09	PAL	NK 140 E3
PARAMETER												
Diesel Range Organics			-	-	-		-		- 5	f. <u>-</u>	NS	NS
Gasoline Range Organics	-	-	-	-	-	-	-	-	-	-	NS	NS
VOLATILE ORGANIC COMPOUNDS												
Benzene	66.4	18	<0.23	89.3	<0.23	<0.23	<0.31	<0.23	<0.23	<0.23	0.5	5
Toluene	2.65	1.03	<0.36	1.9	<0.36	<0.36	<0.30	<0.36	<0.36	<0.36	200	1,000
Ethylbenzene	11.8	2.96	<0.40	14.0	<0.40	<0.40	<0.50	<0.40	<0.40	<0.40	140	700
Xylenes	15.92	5.6	<0.74	10.55	<0.74	<0.74	<0.62	<0.74	<0.74	<0.74	1000	10,000
Methyl-tert-butyl-ether	3.52	0.918	<0.36	2.2	<0.36	0.38*	<0.30	<0.36	<0.36	<0.36	12	60
Trimethylbenzenes <sup>1</sup>	11.24	2.66	<0.40	5.08	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	96	480
1,2-Dichloroethane	-	-	-	-	-	-	-	-	-	-	0.5	5
POLYNUCLEAR AROMATIC H	IYDROCAF	RBONS										
Naphthalene	-	-	-	-	-	-	-	-	-	-	10	100
Anthracene	-	-	-	-	-	-	-	-	-	-	600	3,000
Benzo(a)Pyrene	_	-	-	-	-	-	-	-	-	-	0.02	0.2
Benzo(b)fluoranthene	-	-	-		-	-	-	-	-	-	0.02	0.2
Chrysene	-	-	-	-	-	-	-	-	-	-	0.02	0.2
Fluoranthene		-	-	-	_	-	-				80	400
Fluorene	-	-	-	-	-	-	-	-	-	-	80	400
Pyrene	-	-	-	-	-	-	-	-	-	-	50	250
Total PAH List	_	-	-	-	-	-	-	-	-	-	NS	NS

All concentrations in ppb (ug/l)

PAL = WDNR Preventative Action Limit

ES = WDNR Enforcement Standard

- =Not sampled

NS = No applicable standard

1.3 = concentration > PAL & ES

<sup>&</sup>lt;sup>1</sup> = Combined 1,2,4- & 1,3,5- trimethylbenzene compounds

<sup>&</sup>lt; = Parameter was not detected and if present is less than the limit of detection reported

<sup>\* =</sup> Value is < the laboratory limit of quantitation, but reported per WDNR guidelines (3/1/96)



# TABLE 2 SOIL CHEMISTRY - DITCH ASSESSMENT JUNCTION CITY FUEL TERMINAL FLINT HILLS RESOURCES, LP JUNCTION CITY, WISCONSIN TETRA TECH #114-340316.100

SAMPLE ID	GP-2	GP-3						NR 720	NR 746 RISK	NR 746 DIRECT CONTACT STANDARDS
DEPTH (feet bls)	6	3						GENERIC SOIL CLEANUP	SCREENING STANDARDS	
MATRIX TYPE	clayey sand	clayey sand						STANDARDS		
DATE SAMPLED	10/14/09	10/14/09					9	11		
PARAMETER (mg/kg)	-			•	-	-				
DRO								100'		
								250 <sup>2</sup>		
GRO	4	<3.0		İ				100'		
				İ				250 <sup>2</sup>		
PETROLEUM VOLATILE (	ORGANIC COM	IPOUNDS (PV	OC)	•						
Benzene	<0.025	<0.025						0.0055	8.5	1.1
Toluene	<0.025	0.151						1.5	38	
Ethylbenzene	<0.025	<0.025						2.9	4.6	
Total Xylenes	<0.050	<0.050						4.1	42	
1,3,5 Trimethylbenzene	31.4*	<0.025							11	
1,2,4 Trimethylbenzene	38.8*	<0.025							83	
MTBE	<0.025	<0.025								

bls = below land surface (below original grade of the dike area)

all values are in mg/kg = milligrams per kilogram (parts-per-million)

**Bold** = concentration > NR 720 Generic Soil Cleanup Standards

<sup>1</sup> standard corresponds to permeable soils (hydraulic conductivity > 10 E-6 cm/s)

<sup>&</sup>lt;sup>2</sup> standard corresponds to non-permeable soils (hydraulic conductivity < 10 E-6 cm/s)

<sup>\* =</sup> value is between the laboratory limit of detection and limit of quantitation but reported per WDNR guidelines dated 3/1/96

<sup>--- =</sup> No soil standard currently applicable

<sup>&</sup>lt; = Parameter was not detected and if present, is less than the limit of detection reported



## TABLE 3 GROUNDWATER CHEMISTRY - GEOPROBE BORINGS FLINT HILLS RESOURCES, LP JUNCTION CITY, WISCONSIN TETRA TECH #114-340316.100

SAMPLE LOCATION	GPW-1	GPW-2	GPW-3	GPW-4	GPW-5	GPW-6					NR 140	NR 140 ES
DATE	10/13/09	10/13/09	10/13/09	10/13/09	10/13/09	10/13/09					PAL	14K 140 E5
PARAMETER	PARAMETER											
Diesel Range Organics	-	-	-		-	-					NS	NS
Gasoline Range Organics	5650	858	2110	337	112	28.4*					NS	NS
VOLATILE ORGANIC COMPO	VOLATILE ORGANIC COMPOUNDS											
Benzene	1380	207	452	113	1.1	<0.23					0.5	5
Toluene	121	1.8	8.5	1.5	<0.36	<0.36					200	1,000
Ethylbenzene	353	20.9	88.2	5.2	<0.40	<0.40					140	700
Xylenes	496.4	8.1	39	4.1	<0.74	<0.74					1000	10,000
Methyl-tert-butyl-ether	12.2	6.9	14.1	9.8	16.3	0.71*					12	60
Trimethylbenzenes <sup>1</sup>	309.1	20.6	31.3	2.5	0.55*	<0.40					96	480
1,2-Dichloroethane		-	-	-	-	-					0.5	5
POLYNUCLEAR AROMATIC H	IYDROCAI	RBONS										
Naphthalene	-	-	-	-	-	-					10	100
Anthracene	-	-	-	-	-	-					600	3,000
Benzo(a)Pyrene	-	-	-	-	-	-					0.02	0.2
Benzo(b)fluoranthene	-	-	-	-	-	-					0.02	0.2
Chrysene	-	-	-	-	-	-					0.02	0.2
Fluoranthene	-	-	-	-	-	-					80	400
Fluorene	-		-	-	-	-					80	400
Pyrene	-	-	-	-	-	-					50	250
Total PAH List	-	_	_	_	-	-					NS	NS

All concentrations in ppb (ug/l)

PAL = WDNR Preventative Action Limit

ES = WDNR Enforcement Standard

- =Not sampled

NS = No applicable standard

1.3 = concentration > PAL

9.9 = concentration > PAL & ES

<sup>&</sup>lt;sup>1</sup> = Combined 1,2,4- & 1,3,5- trimethylbenzene compounds

<sup>&</sup>lt; = Parameter was not detected and if present is less than the limit of detection reported

<sup>\* =</sup> Value is < the laboratory limit of quantitation, but reported per WDNR guidelines (3/1/96)



# TABLE 2 SOIL CHEMISTRY - DITCH ASSESSMENT JUNCTION CITY FUEL TERMINAL FLINT HILLS RESOURCES, LP JUNCTION CITY, WISCONSIN TETRA TECH #114-340316.100

SAMPLE ID  DEPTH (feet bis)  MATRIX TYPE  DATE SAMPLED	GP-2 6 clayey sand 10/14/09	GP-3 3 clayey sand 10/14/09	,			8		NR 720 GENERIC SOIL CLEANUP STANDARDS	NR 746 RISK SCREENING STANDARDS	NR 746 DIRECT CONTACT STANDARDS
PARAMETER (mg/kg)		8		di .			·			
DRO								100'		
								250 <sup>2</sup>		,
GRO	4	<3.0					×	1001		
					· ·			250 <sup>2</sup>		
PETROLEUM VOLATILE (	ORGANIC COM	IPOUNDS (PV	(OC)			•	M.		A	
Benzene	<0.025	<0.025				6		0.0055	8.5	1.1
Toluene	<0.025	0.151				2		1.5	38	
Ethylbenzene	<0.025	<0.025						2.9	- 4.6	
Total Xylenes	<0.050	<0.050						4.1	42	· ·
1,3,5 Trimethylbenzene	0.0314*	<0.025							11	
1,2,4 Trimethylbenzene	0.0388*	<0.025							83	
MTBE	<0.025	<0.025								
				*	0					

bls = below land surface (below original grade of the dike area)

all values are in mg/kg = milligrams per kilogram (parts-per-million)

**Bold** = concentration > NR 720 Generic Soil Cleanup Standards

standard corresponds to permeable soils (hydraulic conductivity > 10 E-6 cm/s)

<sup>&</sup>lt;sup>2</sup> standard corresponds to non-permeable soils (hydraulic conductivity < 10 E-6 cm/s)

<sup>\* =</sup> value is between the laboratory limit of detection and limit of quantitation but reported per WDNR guidelines dated 3/1/96

<sup>--- =</sup> No soil standard currently applicable

<sup>&</sup>lt; = Parameter was not detected and if present, is less than the limit of detection reported

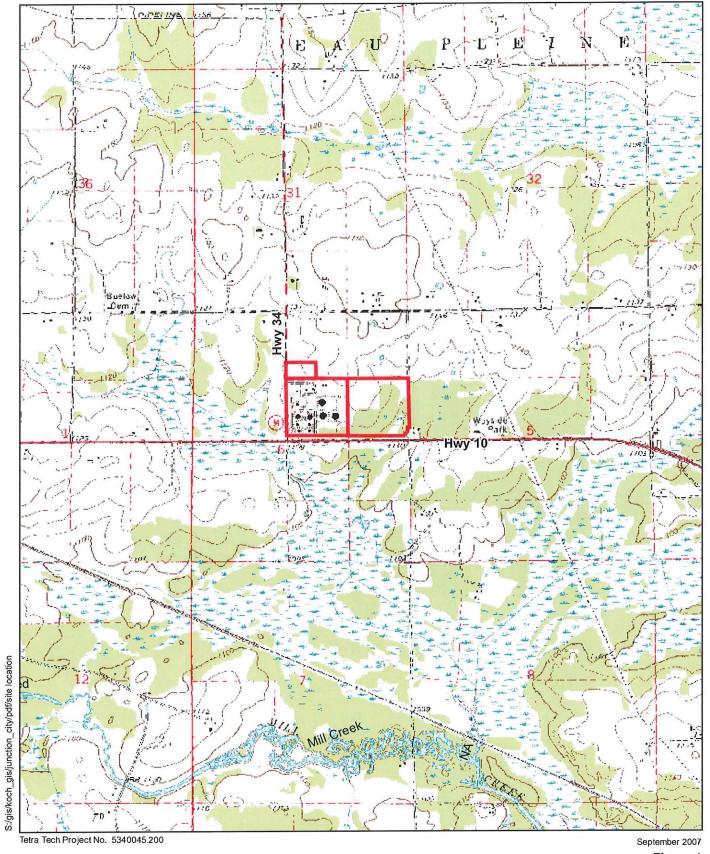






Figure 1
Site Location Map
Junction City Bulk Fuel Terminal
Flint Hills Resources, LP
2267 State Highway 34
Junction City, WI 54443



2009

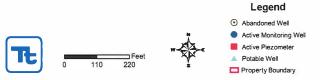
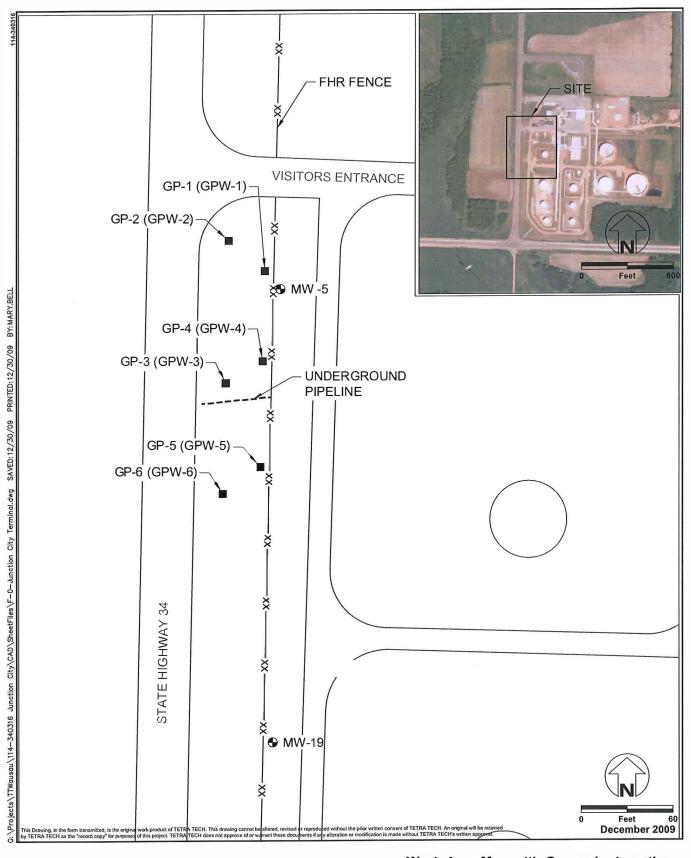


Figure 2
Ditch Water Sample Location Map
Junction City Fuel Terminal
Flint Hills Resources, LP
Portage County, Wisconsin





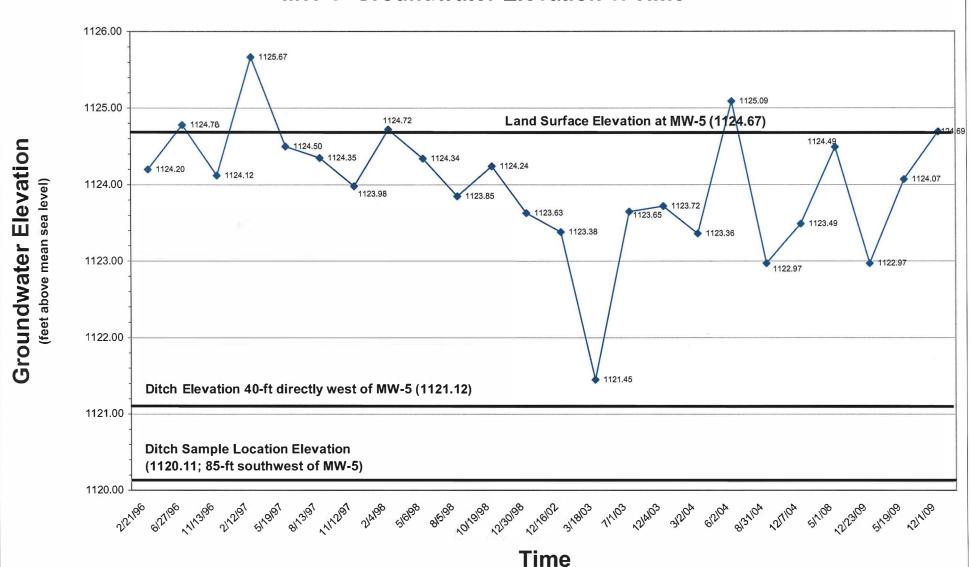
Monitoring Well Location

Geoprobe Location

Work Area Map with Geoprobe Locations
Junction City Bulk Terminal
ation
Flint Hills Resources, LP
Junction City, Wisconsin
FIGURE 3



# Figure 4 FHR Junction City Terminal MW-5 Groundwater Elevation v. Time



### APPENDIX A SURFACE WATER ANALYTICAL REPORTS

April 28, 2008

Tetra Tech., Inc. 555 S. 72nd Ave. Wausau, WI 54401

Attn: Greg Aldrian

**REPORT NO.: 0804474** 

PROJECT NO.: 5340045, FHR Junction City, Ditch Water Sarr

Please find enclosed the analytical report, including the Sample Summary, Sample Narrative and Chain of Custody for your sample set received April 25, 2008.

All analyses were performed in accordance with NELAC Standards using approved methods as indicated on this report.

If you have any questions about the results, please call. Thank you for using Siemens Water Technologies for your analytical needs.

Sincerely,

Siemens Water Technologies

ances & Saltows /~

James Salkowski

Lab Director

Enviroscan Analytical™ Services

I certify that the data contained in this report has been generated and reviewed in accordance with the Siemens Water Technologies Quality Assurance Program. Exceptions, if any, are discussed in the sample narrative. Samples will be retained for 30 days from the date of this report, then disposed in an appropriate manner. Siemens Water Technologies Corp. reserves the right to return samples Identified as hazardous. Release of this Final Report is authorized as verified by the following signature.

Approved by:

**Certifications:** 

Wisconsin 737053130 Minnesota 055-999-302 Illinois 100317

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### SAMPLE SUMMARY

<u>Lab ld</u> 0804474-01

0804474-02

Client Sample Id Trip Blank Ditch Water Hwy 34 
 Date/Time
 Matrix

 04/25/08 00:00
 Water

 04/25/08 12:20
 Surface Water

Tetra Tech., Inc. 555 S. 72nd Ave. Wausau, WI 54401

Attn: Greg Aldrian

Sample ID: Trip Blank

Matrix: Water

PROJECT NO.: 5340045, FHR Junction City, Ditch Wat

REPORT NO.: 0804474 DATE REC'D: 04/25/08 13:10 REPORT DATE: 04/28/08 09:55

PREPARED BY: JRS

Sample Date/Time: 04/25/08 0:00 Lab No.: 0804474-01

System Contracting to the Contracting of the Contracting to the Contra	EPA 8021B	Results	<u>Units</u>	<u>LOD</u>	LOQ	Dilution <u>Factor</u>	Qualifiers	Date <u>Analyzed</u>	<u>Analyst</u>
	1,2,4-Trimethylbenzene	ND	ug/L	0.400	1.30	1		04/25/08	ALZ
0000420000	1,3,5-Trimethylbenzene	ND	ug/L	0.310	1.03	1		04/25/08	ALZ
Sugar Wedde	Benzene	ND	ug/L	0.310	1.00	1		04/25/08	ALZ
	Ethylbenzene	ND	ug/L	0.500	1.70	1		04/25/08	ALZ
appropriate the second	m&p-Xylene	ND	ug/L	0.620	2.10	1		04/25/08	ALZ
occupation of the control of the con	Methyl Tert Butyl Ether	ND	ug/L	0.300	1.00	1		04/25/08	ALZ
3	o-Xylene	ND	ug/L	0.360	1.20	1		04/25/08	ALZ
FOXOGO	Toluene	ND	ug/L	0.300	1.00	1	•	04/25/08	ALZ

Sample ID: Ditch Water Hwy 34 Matrix: Surface Water Sample Date/Time: 04/25/08 12:20 Lab No.: 0804474-02

PORTON	Results	<u>Units</u>	LOD	LOQ	Dilution <u>Factor</u>	<u>Qualifiers</u>	Date <u>Analyzed</u>	Analyst
EPA 8021B								
1,2,4-Trimethylbenzene	7.21	ug/L	0.400	1.30	1		04/25/08	ALZ
1,3,5-Trimethylbenzene	4.03	ug/L	0.310	1.03	1		04/25/08	ALZ
Benzene	66.4	ug/L	0.310	1.00	1		04/25/08	ALZ
Ethylbenzene	11.8	ug/L	0.500	1.70	1		04/25/08	ALZ
m&p-Xylene	13.9	ug/L	0.620	2.10	1		04/25/08	ALZ
Methyl Tert Butyl Ether	3.52	ug/L	0.300	1.00	1		04/25/08	ALZ
o-Xylene	2.02	ug/L	0.360	1.20	1		04/25/08	ALZ
Toluene	2.65	ug/L	0.300	1.00	1		04/25/08	ALZ

#### **Qualifier Descriptions**

#### **Definitions**

LOD = Limit of Detection (Dilution Corrected)
LOQ = Limit of Quanitation (Dilution Corrected)
ND = Not Detected
COMP = Complete
SUBCON = Subcontracted analysis
mv = millivolts
pci/L = picocuries per Liter
mL/L = milliliters per Liter
mg = milligram

When the word "dry" follows the units on the result page the sample results are dry weight corrected.

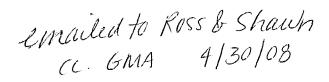
LODs and LOQs are dry weight corrected for all soils except WI GRO, EPA 8021 and WI DNR/EPA 8260B methanol and WI DNR methylene chloride preserved

ug/l = Micrograms per Liter = parts per billion (ppb)
ug/kg = Micrograms per kilogram = parts per billion (ppb)
mg/l = Milligrams per liter = parts per million (ppm)
mg/kg = Milligrams per kilogram = parts per million (ppm)
NOT PRES = Not Present
ppth = Parts per thousand
\* = Result outside established limits.
mg/m3 = Milligrams per meter cubed
ng/L = Nanograms per Liter = Parts per trillion(ppt)
> = Greater Than

State of Wisconsin Methanol Soils for WI GRO, WI DNR/EPA 8260B and EPA 8021 are reported to the LOQ.

Company Name		Proj	ject	• • • • • • • • • • • • • • • • • • • •						
TETRA TECH			FAR - JUNCTION CITY - DITCH WATER SAMPLING							
Report Mailing Address  555 SOUTH 72ND AVENUE		Con	ntact Name, Ph	one, Fax, Em	ail	_				
A A					TEIRAT	ECH. COM				
WAUSAU, WI 54401	,		715. 845. 4100							
Invoice Address		Pur	Purchase Order # Invoice Contact and Phone No.							
* SAME AS ABOVEX			5340045 PENNY FULLER 715.845.4100							
Matrix: Drinking Water Groundwater Wastewater 5	Soil/Solid Other: SURFACE	WATER	Analyse	es Requested		Lab Use Only				
Wis. PECFA Project subject to U&C? Yes No		}	TIT			Delivered by Walk-in Courier Ship, Cont. Ok? Y N: NA				
For Compliance Monitoring? Yes No (If Yes, please specify Agency or Regulation) Age	State: ency/Reg.:					Samples Leaking? X AP NA Seals OK? N NA Rec'd on Ice? N NA				
Turnaround Request: [ ] Normal (10 Bus. Days)	oved by Lab and is subject to surc	و				Sample Receiving Comments:				
wo no. 0804474		000								
Lab Use Sample No. of Cor Only Date Time Comp	ntainers Sample Grab ID	.				Comments				
-01 2/26/28	TRIP BLANK	<u> </u>			·	TB-PACO Andy				
-67 4/25/08 1220 /	3 DITCH WATTER H	X 45 YW								
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Chain of Custody		funing to	•	4/25/08						
Record			,							
				425.08	1310	Sur Hade				

Siemens Water Technologies 301 W. Military Rd. Rothschild, WI 54474 1-800-338-7226



April 30, 2008

Tetra Tech., Inc. 555 S. 72nd Ave. Wausau, WI 54401

Attn: Greg Aldrian

**REPORT NO.: 0804506** 

PROJECT NO.: 5340045, FHR Junction City, Ditch Water Sam

Please find enclosed the analytical report, including the Sample Summary, Sample Narrative and Chain of Custody for your sample set received April 28, 2008.

All analyses were performed in accordance with NELAC Standards using approved methods as indicated on this report.

If you have any questions about the results, please call. Thank you for using Siemens Water Technologies for your analytical needs.

Sincerely,

Siemens Water Technologies

Janush Salkows 1"

James Salkowski

Lab Director

Enviroscan Analytical™ Services

I certify that the data contained in this report has been generated and reviewed in accordance with the Siemens Water Technologies Quality Assurance Program. Exceptions, if any, are discussed in the sample narrative. Samples will be retained for 30 days from the date of this report, then disposed in an appropriate manner. Siemens Water Technologies Corp. reserves the right to return samples identified as hazardous. Release of this Final Report is authorized as verified by the following signature.

Approved by:

Certifications:

Wisconsin 737053130 Minnesota 055-999-302

Illinois 100317

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may a Vag

### **SAMPLE SUMMARY**

Profession (	Lab Id	Client Sample Id	Date/Time	<u>Matrix</u>
0.0	0804506-01	Trip Blank	04/28/08 00:00	Water
CENTRALIA .	0804506-02	Ditch Water Hwy 34, North Sample	04/28/08 14:50	Surface Water
NAME OF TAXABLE SAME	0804506-03	Ditch Water Hwy 34, South Sample	04/28/08 15:10	Surface Water

Tetra Tech., Inc. 555 S. 72nd Ave. Wausau, WI 54401

Attn: Greg Aldrian

Sample ID: Trip Blank

Matrix: Water

PROJECT NO.: 5340045, FHR Junction City, Ditch Wat REPORT NO.: 0804506 DATE REC'D: 04/28/08 16:03 REPORT DATE: 04/30/08 10:27

PREPARED BY: JRS

Sample Date/Time: 04/28/08 0:00 Lab No.: 0804506-01

	<u>Results</u>	<u>Units</u>	LOD	LOQ	Dilution <u>Factor</u>	Qualifiers	Date <u>Analyzed</u>	Analyst
EPA 8021B								
1,2,4-Trimethylbenzene	ND	ug/L	0.400	1.30	1		04/29/08	ALZ
1,3,5-Trimethylbenzene	ND	ug/L	0.310	1.03	1		04/29/08	ALZ
Benzene	ND	ug/L	0.310	1.00	1		04/29/08	ALZ
Ethylbenzene	ND	ug/L	0.500	1.70	1		04/29/08	ALZ
m&p-Xylene	ND	ug/L	0.620	2.10	1		04/29/08	ALZ
Methyl Tert Butyl Ether	ND	ug/L	0.300	1.00	1		04/29/08	ALZ
o-Xylene	ND	ug/L	0.360	1.20	1		04/29/08	ALZ
Toluene	ND	ug/L	0.300	1.00	1		04/29/08	· ALZ

Sample ID: Ditch Water Hwy 34, North Matrix: Surface Water Sample

Sample Date/Time: 04/28/08 14:50

Lab No.: 0804506-02

Thirties (4)		Results	<u>Units</u>	<u>LOD</u>	LOQ	Dilution <u>Factor</u>	Qualifiers	Date <u>Analyzed</u>	<u>Analyst</u>
Aceterious and the contraction of	EPA 8021B 1,2,4-Trimethylbenzene	2.07	ug/L	0.400	1.30	1		04/29/08	ALZ
	1,3,5-Trimethylbenzene	0.594	ug/L	0.310	1.03	1	J	04/29/08	ALZ
NAME OF THE PERSONS	Benzene	18.0	ug/L	0.310	1.00	1		04/29/08	ALZ
Agreement A	Ethylbenzene	2.96	ug/L	0.500	1.70	1		04/29/08	ALZ
	m&p-Xylene	4.33	ug/L	0.620	2.10	1		04/29/08	ALZ
Page 1997	Methyl Tert Butyl Ether	0.918	ug/L	0.300	1.00	1	J	04/29/08	ALZ
Vilabilities.	o-Xylene	1.27	ug/L	0.360	1.20	1		04/29/08	ALZ
	Toluene	1.03	ug/L	0.300	1.00	1		04/29/08	ALZ

Tetra Tech., inc. 555 S. 72nd Ave. Wausau, WI 54401

PROJECT NO.: 5340045, FHR Junction City, Ditch Wat REPORT NO.: 0804506
DATE REC'D: 04/28/08 16:03
REPORT DATE: 04/30/08 10:27

PREPARED BY: JRS

Attn: Greg Aldrian

Sample ID: Ditch Water Hwy 34, South Matrix: Surface Water

Sample

Lab No.: 0804506-03 Sample Date/Time: 04/28/08 15:10

					Dilution		Date	
	<u>Results</u>	<u>Units</u>	LOD	LOQ	<u>Factor</u>	<b>Qualifiers</b>	<u>Analyzed</u>	<u>Analyst</u>
EPA 8021B								
1,2,4-Trimethylbenzene	ND	ug/L	0.400	1.30	1		04/29/08	ALZ
1,3,5-Trimethylbenzene	ND	ug/L	0.310	1.03	1		04/29/08	ALZ
Benzene	ND	ug/L	0.310	1.00	1		04/29/08	ALZ
Ethylbenzene	ND	ug/L	0.500	1.70	1		04/29/08	ALZ
m&p-Xylene	ND	ug/L	0.620	2.10	1		04/29/08	ALZ
Methyl Tert Butyl Ether	ND	ug/L	0.300	1.00	1		04/29/08	ALZ
o-Xylene	ND	ug/L	0.360	1.20	1		04/29/08	ALZ
Toluene	ND	ug/L	0.300	1.00	1		04/29/08	ALZ

#### **Qualifier Descriptions**

J

Estimated concentration below laboratory quantitation level.

#### **Definitions**

LOD = Limit of Detection (Dilution Corrected)
LOQ = Limit of Quanitation (Dilution Corrected)
ND = Not Detected
COMP = Complete
SUBCON = Subcontracted analysis
mv = millivolts
pci/L = picocuries per Liter
mL/L = milliliters per Liter
mg = milligram

When the word "dry" follows the units on the result page the sample results are dry weight corrected.

LODs and LOQs are dry weight corrected for all soils except WI GRO, EPA 8021 and WI DNR/EPA 8260B methanol and WI DNR methylene chloride preserved

ug/I = Micrograms per Liter = parts per billion (ppb)
ug/kg = Micrograms per kilogram = parts per billion (ppb)
mg/I = Milligrams per liter = parts per million (ppm)
mg/kg = Milligrams per kilogram = parts per million (ppm)
NOT PRES = Not Present
ppth = Parts per thousand
\*= Result outside established limits.
mg/m3 = Milligrams per meter cubed
ng/L = Nanograms per Liter = Parts per trillion(ppt)
> = Greater Than

State of Wisconsin Methanol Soils for WI GRO, WI DNR/EPA 8260B and EPA 8021 are reported to the LOQ.

Company Name TEIRA TECH		FHR-JUNCTION CITY- DITCH WATER SAUN					
Report Mailing Address 555 5 72ml AUE WAUSAU WI 54401		Contact Name, P	hone, Fax, Em	nail 7R14N			
Invoice Address SAME			Invoice Contact and Phone No.  PENNY FULCER  715-845-4100				
Matrix: Drinking Water Groundwater Wastewater Soil/Solid	Other: SURFACIE WATER	Analys	es Requested	Delivered by Walk-in Courier Ship. Cont. Ok? N NA			
For Compliance Monitoring? Yes No State (If Yes, please specify Agency or Regulation) Agency/Reg				Samples Leaking? Y NA Seals OK? N NA Rec'd on Ice? Y N NA			
Turnaround Request: [] Normal (10 Bus. Days) [] Rush (Must be pre-approved by L Date Needed: 430	ab and is subject to surchages)	700°		Sample Receiving Comments:			
Lab Use Sample No. of Containers Only Date Time Comp Grab	Sample ID	9		Comments			
-2 4/28/08 2:50 3 -2 4/28/08 3:10 3	DITCH WATER HW/34 DITCH WATER HW/34 DITCH WATER HWY & SOUTH SAMPLE	* X		RUSH 30, 25tep			
				Splesto 17 Alexis in			
	Relinquished By:		Date	Time Received By:			
Chain of Custody Record	-day a		4/28/08				
			4/200	16:03 Marish Klein			

Siemens Water Technologies 301 W. Military Rd. Rothschild, WI 54474 1-800-338-7226





October 14, 2008

Marsha Meurette Tetra Tech, INC. 555 South 72nd Avenue Wausau, WI 54401

RE: Project: 5340045 FHR-JCT TERM.

Pace Project No.: 4010027

#### Dear Marsha Meurette:

Enclosed are the analytical results for sample(s) received by the laboratory on October 09, 2008. The results relate only to the samples included in this report. Results reported herein conform to the most current NELAC standards, where applicable, unless otherwise narrated in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Brian Basten

brian.basten@pacelabs.com

**Project Manager** 

Enclosures



Pace Analytical Services, Inc. 1241 Bellevue Street Green Bay, WI 54302 (920)469-2436

#### **CERTIFICATIONS**

Project:

5340045 FHR-JCT TERM.

Pace Project No.:

4010027

**Green Bay Certification IDs** 

Louisiana Certification #: 04169
Louisiana Certification #: 04168
Kentucky Certification #: 83
Kentucky Certification #: 82
Wisconsin DATCP Certification #: 105-444
Wisconsin DATCP Certification #: 105-444
Wisconsin Certification #: 405132750
Wisconsin Certification #: 405132750
South Carolina Certification #: 83006001
South Carolina Certification #: 83006001
Minnesota Certification #: 055-999-334

Minnesota Certification #: 055-999-334
North Carolina Certification #: 503
North Carolina Certification #: 503
North Dakota Certification #: R-200
North Dakota Certification #: R-150
New York Certification #: 11888
New York Certification #: 11887
Illinois Certification #: 200051
Illinois Certification #: 200050
Florida (NELAP) Certification #: E87951
Florida (NELAP) Certification #: E87948







#### **SAMPLE SUMMARY**

Project:

5340045 FHR-JCT TERM.

Pace Project No.:

4010027

Lab ID	Sample ID	Matrix	Date Collected	Date Received
4010027001	DITCHWATER - NORTH	Water	10/08/08 09:40	10/09/08 09:10
4010027002	DITCHWATER - SOUTH	Water	10/08/08 09:50	10/09/08 09:10
4010027003	TRIP BLANK	Water	10/08/08 00:00	10/09/08 09:10







#### SAMPLE ANALYTE COUNT

Project:

5340045 FHR-JCT TERM.

Pace Project No.:

4010027

Lab ID	SampleID	Method	Analysts	Analytes Reported
4010027001	DITCHWATER - NORTH	TPH WI GRO/PVOC 8021	PMS	9
4010027002	DITCHWATER - SOUTH	TPH WI GRO/PVOC 8021	PMS	9
4010027003	TRIP BLANK	TPH WI GRO/PVOC 8021	PMS	9





#### **ANALYTICAL RESULTS**

Project:

5340045 FHR-JCT TERM.

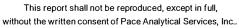
Pace Project No.: 4010027

Sample: DITCHWATER - NORTH	Lab ID: 4010027	001 Collected	: 10/08/0	8 09:40	Received: 10	0/09/08 09:10 M	latrix: Water	
Parameters	Results Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
WIGRO GCV	Analytical Method: 1	TPH WI GRO/PVC	OC 8021					
Benzene	<0.23 ug/L	1.0	0.23	1		10/14/08 06:18	71-43-2	
Ethylbenzene	<0.40 ug/L	1.0	0.40	1		10/14/08 06:18	100-41-4	
Methyl-tert-butyl ether	<0.36 ug/L	1.0	0.36	1		10/14/08 06:18	1634-04-4	
Toluene	<0.36 ug/L	1.0	0.36	1		10/14/08 06:18	108-88-3	
1,2,4-Trimethylbenzene	<0.39 ug/L	1.0	0.39	1		10/14/08 06:18	95-63-6	
1,3,5-Trimethylbenzene	<0.40 ug/L	1.0	0.40	1		10/14/08 06:18	108-67-8	
m&p-Xylene	<0.74 ug/L	2.0	0.74	1		10/14/08 06:18	1330-20-7	
o-Xylene	<0.36 ug/L	1.0	0.36	1		10/14/08 06:18		
a,a,a-Trifluorotoluene (S)	101 %	80-124		1		10/14/08 06:18	98-08-8	
Sample: DITCHWATER - SOUTH	Lab ID: 40100270	002 Collected:	10/08/0	8 09:50	Received: 10	)/09/08 09:10 M	atrix: Water	
Parameters	Results Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
WIGRO GCV	Analytical Method: T	PH WI GRO/PVC	OC 8021					
Benzene	<0.23 ug/L	1.0	0.23	1 .		10/14/08 06:44	71-43-2	
Ethylbenzene	<0.40 ug/L	1.0	0.40	1		10/14/08 06:44	100-41-4	
Methyl-tert-butyl ether	<0.36 ug/L	1.0	0.36	1		10/14/08 06:44	1634-04-4	
Toluene	<0.36 ug/L	1.0	0.36	1		10/14/08 06:44	108-88-3	
1,2,4-Trimethylbenzene	<0.39 ug/L	1.0	0.39	1		10/14/08 06:44	95-63-6	
1,3,5-Trimethylbenzene	<0.40 ug/L	1.0	0.40	1		10/14/08 06:44	108-67-8	
m&p-Xylene	<0.74 ug/L	2.0	0.74	1		10/14/08 06:44	1330-20-7	
o-Xylene	<0.36 ug/L	1.0	0.36	1		10/14/08 06:44	95-47-6	
a,a,a-Trifluorotoluene (S)	99 %	80-124		1		10/14/08 06:44	98-08-8	
Sample: TRIP BLANK	Lab ID: 40100270	003 Collected:	10/08/0	8 00:00	Received: 10	/09/08 09:10 M	atrix: Water	
Parameters	Results Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
WIGRO GCV	Analytical Method: T	PH WI GRO/PVC	C 8021					
Benzene	<0.23 ug/L	1.0	0.23	1		10/14/08 02:30	71-43-2	
Ethylbenzene	<0.40 ug/L	1.0	0.40	1		10/14/08 02:30		
Methyl-tert-butyl ether	<0.36 ug/L	1.0	0.36	1		10/14/08 02:30	1634-04-4	
Toluene	<0.36 ug/L	1.0	0.36	1		10/14/08 02:30		
1,2,4-Trimethylbenzene	<0.39 ug/L	1.0	0.39	1		10/14/08 02:30	95-63-6	
1,3,5-Trimethylbenzene	<0.40 ug/L	1.0	0.40	1		10/14/08 02:30	108-67-8	
m&p-Xylene	<0.74 ug/L	2.0	0.74	1		10/14/08 02:30	1330-20-7	
o-Xylene	<0.36 ug/L	1.0	0.36	1		10/14/08 02:30	95-47-6	

Date: 10/14/2008 03:43 PM

**REPORT OF LABORATORY ANALYSIS** 

Page 5 of 8







#### **QUALITY CONTROL DATA**

Project:

5340045 FHR-JCT TERM.

Pace Project No.:

4010027

QC Batch:

GCV/2413

Analysis Method:

TPH WI GRO/PVOC 8021

QC Batch Method:

TPH WI GRO/PVOC 8021

Analysis Description:

WIGRO GCV Water

Associated Lab Samples:

4010027001, 4010027002, 4010027003

METHOD BLANK: 88299

Matrix: Water

Associated Lab Samples: 4010027001, 4010027002, 4010027003

		Blank	Reporting		
Parameter	Units	Result	Limit	Analyzed	Qualifiers
1,2,4-Trimethylbenzene	ug/L	<0.39	1.0	10/13/08 23:06	
1,3,5-Trimethylbenzene	ug/L	< 0.40	1.0	10/13/08 23:06	
Benzene	ug/L	< 0.23	1.0	10/13/08 23:06	
Ethylbenzene	ug/L	<0.40	1.0	10/13/08 23:06	
m&p-Xylene	ug/L	< 0.74	2.0	10/13/08 23:06	
Methyl-tert-butyl ether	ug/L	< 0.36	1.0	10/13/08 23:06	
o-Xylene	ug/L	< 0.36	1.0	10/13/08 23:06	
Toluene	ug/L	< 0.36	1.0	10/13/08 23:06	
a,a,a-Trifluorotoluene (S)	%	99	80-124	10/13/08 23:06	

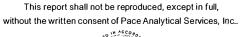
LABORATORY CONTROL SAM	IPLE & LCSD: 88300		88	3301	-					
Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
1,2,4-Trimethylbenzene	ug/L	20	20.0	20.0	100	100	80-120	.1	20	
1,3,5-Trimethylbenzene	ug/L	20	20.1	20.0	100	100	80-120	.5	20	
Benzene	ug/L	20	20.5	20.4	102	102	80-120	.5	20	
Ethylbenzene	ug/L	20	20.5	20.4	103	102	80-120	.5	20	
m&p-Xylene	ug/L	40	40.5	40.2	101	100	80-120	.9	20	
Methyl-tert-butyl ether	ug/L	20	19.5	19.3	97	97	80-120	.9	20	
o-Xylene	ug/L	20	20.1	20.0	101	100	80-120	.5	20	
Toluene	ug/L	20	20.7	20.5	103	102	80-120	.9	20	
a,a,a-Trifluorotoluene (S)	%				99	98	80-124			

MATRIX SPIKE & MATRIX SP	PIKE DUPLICAT	E: 88302			88303							
Parameter	Units	409894005 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
1,2,4-Trimethylbenzene	ug/L	249	200	200	435	444	93	98	36-190	2	20	
1,3,5-Trimethylbenzene	ug/L	58.0	200	200	255	265	99	103	37-199	4	20	
Benzene	ug/L	1270	200	200	1410	1440	72	85	58-141	2	20	
Ethylbenzene	ug/L	329	200	200	514	529	92	100	80-127	3	20	
m&p-Xylene	ug/L	1080	400	400	1430	1450	87	92	77-131	1	20	
Methyl-tert-butyl ether	ug/L	4.0J	200	200	184	197	90	97	80-120	7	20	
o-Xylene	ug/L	32.5	200	200	227	237	97	102	80-122	5	20	
Toluene	ug/L	47.8	200	200	243	255	97	103	80-120	5	20	
a,a,a-Trifluorotoluene (S)	%						92	95	80-124			

Date: 10/14/2008 03:43 PM

REPORT OF LABORATORY ANALYSIS

Page 6 of 8







Pace Analytical Services, Inc. 1241 Bellevue Street Green Bay, WI 54302 (920)469-2436

#### **QUALIFIERS**

Project:

5340045 FHR-JCT TERM.

Pace Project No.:

4010027

#### **DEFINITIONS**

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

**DUP - Sample Duplicate** 

RPD - Relative Percent Difference

NC - Not Calculable.

Pace Analytical is NELAP accredited. Contact your Pace PM for the current list of accredited analytes.







#### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project:

5340045 FHR-JCT TERM.

Pace Project No.:

4010027

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
4010027001	DITCHWATER - NORTH	TPH WI GRO/PVOC 8021	GCV/2413		
4010027002	DITCHWATER - SOUTH	TPH WI GRO/PVOC 8021	GCV/2413		
4010027003	TRIP BLANK	TPH WI GRO/PVOC 8021	GCV/2413		

Date: 10/14/2008 03:43 PM

**REPORT OF LABORATORY ANALYSIS** 

Page 8 of 8



### Sample Condition Upon Receipt

- A Face Analytical Client Nam	e: TETRA	- TECH	Project #	4010027
	Dunhan			
Courier:  Fed Ex UPS USPS CI	ient Commercial	Pace Other		all Salas.
Tracking #:	•	In intent:		
·			∐ no	
Packing Material: Bubble Wrap Bubble	_	$\widehat{}$		C
Thermometer Used N/A	Type of Ice: We		Date and Initi	oling process has begun als, of person examining
Cooler Temperature 201 Temp should be above freezing to 6°C	Biological Hissu	e is Frozen: Yes No Comments:		10/9/08 KC
Chain of Custody Present:	ElYes Ono Onu	T		
Chain of Custody Filled Out:	ØYes Ono On			
Chain of Custody Relinquished:	ØYes □No □N/A			
Sampler Name & Signature on COC:	ØYes □No □NA	4.		
Samples Arrived within Hold Time:	ØYes ŪNo □NA	5.		
Short Hold Time Analysis (<72hr):	□Yes ☑No □NA	6.		
Rush Turn Around Time Requested:	□Yes ☑No □NVA	7.		
Sufficient Volume:	Yes ONO ONIA	8.		
Correct Containers Used:	ØYes □No □N/A	9.		
-Pace Containers Used:	Yes Ono ONA			
Containers Intact:	ØYes □No □NVA	10.		
Filtered volume received for Dissolved tests	□Yes □No ÆNVA	7		
Sample Labels match COC:	ÆYes □no □nva	12.	· · · · · · · · · · · · · · · · · · ·	
-Includes date/time/ID/Analysis Matrix:				,
All containers needing preservation have been checked.	UYes Ono ONA	13.		
All containers eeding preservation are found to be in	□Yes □No ØNA			
compliance with EPA recommendation.	Lifes Cito Piex	<u>!</u>	Lot # of added	
exceptions: VOA, coliform, TOC, O&G, WI-DRO (water)	□Yes □No	Initial when completed	preservative	
Samples checked for dechlorination:	OYes ONO OMA	114.	÷	
Headspace in VOA Vials (>6mm):	□Yes ØNo □NA	15.		
Trip Blank Present:	ØYes □No □N/A	16.		
Trip Blank Custody Seals Present	ØYes □No □N/A	٠.		
Pace Trip Blank Lot # (if purchased):				
Client Notification/ Resolution:			Fleid Data Require	d? Y / N
Person Contacted:	Date/	Time:	·	
Comments/ Resolution:				
-		•		
				*
Project Manager Review:	f/s		Date:	10-9-08
•	11/-/			

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e out of hold, incorrect preservative, out of temp, incorrect containers)





November 19, 2008

Marsha Meurette Tetra Tech, INC. 555 South 72nd Avenue Wausau, WI 54401

RE: Project: 5340045.600 FHR-JCT DITCH PJT

Pace Project No.: 4011473

#### Dear Marsha Meurette:

Enclosed are the analytical results for sample(s) received by the laboratory on November 14, 2008. The results relate only to the samples included in this report. Results reported herein conform to the most current NELAC standards, where applicable, unless otherwise narrated in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Brian Basten

brian.basten@pacelabs.com Project Manager

Enclosures





Pace Analytical Services, Inc. 1241 Bellevue Street - Suite 9 Green Bay, WI 54302 (920)469-2436

#### **CERTIFICATIONS**

Project:

5340045.600 FHR-JCT DITCH PJT

Pace Project No.:

4011473

#### **Green Bay Certification IDs**

Louisiana Certification IDS
Louisiana Certification #: 04169
Louisiana Certification #: 04168
Kentucky Certification #: 83
Kentucky Certification #: 82
Wisconsin DATCP Certification #: 105-444
Wisconsin DATCP Certification #: 105-444
Wisconsin Certification #: 405132750 Wisconsin Certification #: 405132750 South Carolina Certification #: 83006001

South Carolina Certification #: 83006001 Minnesota Certification #: 055-999-334

Minnesota Certification #: 055-999-334 North Carolina Certification #: 503 North Carolina Certification #: 503 North Dakota Certification #: R-200 North Dakota Certification #: R-150 New York Certification #: 11888 New York Certification #: 11887 Illinois Certification #: 200051 Illinois Certification #: 200050

Florida (NELAP) Certification #: E87951 Florida (NELAP) Certification #: E87948







#### **SAMPLE SUMMARY**

Project:

5340045.600 FHR-JCT DITCH PJT

Pace Project No.:

4011473

Lab iD	Sample ID	Matrix	Date Collected	Date Received
4011473001	DITCHWATER - NORTH	Water	11/12/08 14:00	11/14/08 09:00
4011473002	DITCHWATER - SOUTH	Water	11/12/08 14:30	11/14/08 09:00
4011473003	TRIP BLANK	Water	11/12/08 00:00	11/14/08 09:00





Pace Analytical Services, Inc. 1241 Bellevue Street - Suite 9 Green Bay, WI 54302 (920)469-2436

#### **SAMPLE ANALYTE COUNT**

Project:

5340045.600 FHR-JCT DITCH PJT

Pace Project No.: 4011473

Lab ID	Sample ID	Method	Analysts	Analytes Reported
4011473001	DITCHWATER - NORTH	TPH WI GRO/PVOC 8021	SES	9
4011473002	DITCHWATER - SOUTH	TPH WI GRO/PVOC 8021	SES	9
4011473003	TRIP BLANK	TPH WI GRO/PVOC 8021	SES	9





#### **ANALYTICAL RESULTS**

Project:

5340045.600 FHR-JCT DITCH PJT

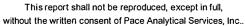
Pace Project No.: 4011473

Sample: DITCHWATER - NORTH	Lab ID	: 4011473001	Collected	: 11/12/0	8 14:00	Received: 1	1/14/08 09:00 M	latrix: Water	
Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
WIGRO GCV	Analytica	al Method: TPH	WI GRO/PV	OC 8021					
Benzene	89.3	ug/L	1.0	0.23	1		11/18/08 08:58	3 71-43-2	
Ethylbenzene	14.0	ug/L	1.0	0.40	1		11/18/08 08:58	3 100-41-4	
Methyl-tert-butyl ether	2.2 (	ug/L	1.0	0.36	1		11/18/08 08:58	3 1634-04-4	
Toluene	1.9 (	ug/L	1.0	0.36	1		11/18/08 08:58	3 108-88-3	
1,2,4-Trimethylbenzene	4.4 (	ug/L	1.0	0.39	1		11/18/08 08:58	3 95-6.3 <b>-</b> 6	
1,3,5-Trimethylbenzene	0.68J (	ug/L	1.0	0.40	1		11/18/08 08:58	3 108-67-8	
m&p-Xylene	9.6 (	ug/L	2.0	0.74	1		11/18/08 08:58	1330-20-7	
o-Xylene	0.95J t	ug/L	1.0	0.36	1		11/18/08 08:58	95-47-6	
a,a,a-Trifluorotoluene (S)	100 9	%	80-124		1		11/18/08 08:58	3 98-08-8	
Owner DITOURATED COUTU	1 -1-10	4044470000	0-1141	44.440.40	0.4.4.00	Danation de 4	4/44/00 00:00 14	-1-:	
Sample: DITCHWATER - SOUTH	Lab ID:	4011473002	Collected:	11/12/0	8 14:30	Received: 1	1/14/08 09:00 M	atrix: Water	
Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
WIGRO GCV	Analytica	I Method: TPH	WI GRO/PVO	OC 8021					
Benzene	<0.23 ≀	ıg/L	1.0	0.23	1		11/17/08 17:01	71-43-2	
Ethylbenzene	<b>&lt;0.40</b> ≀	ıg/L	1.0	0.40	1		11/17/08 17:01	100-41-4	
Methyl-tert-butyl ether	<0.36 ≀	ıg/L	1.0	0.36	1		11/17/08 17:01	1634-04-4	
Toluene	<0.36 ≀	ıg/L	1.0	0.36	1		11/17/08 17:01	108-88-3	
1,2,4-Trimethylbenzene	<b>&lt;0.39</b> ເ	ıg/L	1.0	0.39	1		11/17/08 17:01	95-63-6	
1,3,5-Trimethylbenzene	<0.40 t	ıg/L	1.0	0.40	1		11/17/08 17:01	108-67-8	
m&p-Xylene	<0.74 t	ıg/L	2.0	0.74	1		11/17/08 17:01	1330-20-7	
o-Xylene	<0.36 ເ	ıg/L	1.0	0.36	1		11/17/08 17:01	95-47-6	
a,a,a-Trifluorotoluene (S)	101 9	%	80-124		1		11/17/08 17:01	98-08-8	
Sample: TRIP BLANK	Lab ID:	4011473003	Collected:	11/12/0	3 00:00	Received: 1	1/14/08 09:00 M	atrix: Water	
Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
	Analytica	I Method: TPH \	WI GRO/PVC	OC 8021		· ·			
Benzene	<0.23 u		1.0	0.23	1		11/17/08 17:27	71 /3 2	
Benzene Ethylbenzene	<0.40 u	-	1.0	0.23	1		11/17/08 17:27		
Methyl-tert-butyl ether	<0.36 u	•	1.0	0.40	1		11/17/08 17:27		
Toluene	<0.36 u	•	1.0	0.36	1		11/17/08 17:27		
i olderie 1,2,4-Trimethylbenzene	<0.39 u	•	1.0	0.39	1		11/17/08 17:27		
1,3,5-Trimethylbenzene	<0.40 u	•	1.0	0.39	1		11/17/08 17:27		
m&p-Xylene	<0.74 u	•	2.0	0.40	1		11/17/08 17:27		
mαρ-∧ylene o-Xylene	<0.74 u	•	1.0	0.74	1		11/17/08 17:27		
•				0.30					
a,a,a-Trifluorotoluene (S)	101 %	6	80-124		1		11/17/08 17:27	98-08-8	

Date: 11/19/2008 12:13 PM

**REPORT OF LABORATORY ANALYSIS** 

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#### **QUALITY CONTROL DATA**

Project:

5340045.600 FHR-JCT DITCH PJT

Pace Project No.: 4011473

QC Batch:

GCV/2630

Analysis Method:

TPH WI GRO/PVOC 8021

QC Batch Method:

TPH WI GRO/PVOC 8021

Analysis Description:

WIGRO GCV Water

Associated Lab Samples: 4011473001, 4011473002, 4011473003

Matrix: Water

METHOD BLANK: 102246

Associated Lab Samples: 4011473001, 4011473002, 4011473003

		Blank	Reporting		
Parameter	Units	Result	Limit	Analyzed	Qualifiers
1,2,4-Trimethylbenzene	ug/L	<0.39	1.0	11/17/08 11:22	
1,3,5-Trimethylbenzene	ug/L	<0.40	1.0	11/17/08 11:22	
Benzene	ug/L	<0.23	1.0	11/17/08 11:22	
Ethylbenzene	ug/L	<0.40	1.0	11/17/08 11:22	
m&p-Xylene	ug/L	<0.74	2.0	11/17/08 11:22	
Methyl-tert-butyl ether	ug/L	<0.36	1.0	11/17/08 11:22	
o-Xylene	ug/L	<0.36	1.0	11/17/08 11:22	
Toluene	ug/L	<0.36	1.0	11/17/08 11:22	
a,a,a-Trifluorotoluene (S)	%	100	80-124	11/17/08 11:22	

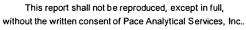
LABORATORY CONTROL SAMPLE & LCSD: 102247			10	2248						
Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
1,2,4-Trimethylbenzene	ug/L	20	19.7	19.9	98	99	80-120	1	20	*** **
1,3,5-Trimethylbenzene	ug/L	20	20.2	20.2	101	101	80-120	.07	20	
Benzene	ug/L	20	20.5	20.4	102	102	80-120	.1	20	
Ethylbenzene	ug/L	20	20.7	20.6	103	103	80-120	.5	20	
m&p-Xylene	ug/L	40	40.9	40.5	102	101	80-120	.8	20	
Methyl-tert-butyl ether	ug/L	20	20.8	20.9	104	104	80-120	.1	20	
o-Xylene	ug/L	20	20.4	20.3	102	102	80-120	.4	20	
Toluene	ug/L	20	20.9	20.6	104	103	80-120	1	20	
a,a,a-Trifluorotoluene (S)	%				100	99	80-124			

MATRIX SPIKE & MATRIX S	MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 102340											
Parameter	40 Units	011441005 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
1,2,4-Trimethylbenzene	ug/L		4000	4000	8580	8390	106	101	36-190		20	-
1,3,5-Trimethylbenzene	ug/L		4000	4000	5700	5560	110	106	37-199	3	20	
Benzene	ug/L		4000	4000	4250	4180	106	105	58-141	2	20	
Ethylbenzene	ug/L		4000	4000	12500	12300	107	102	80-127	2	20	
m&p-Xylene	ug/L		8000	8000	54400	53600	99	90	77-131	1	20	
Methyl-tert-butyl ether	ug/L		4000	4000	4140	4070	103	102	80-120	2	20	
o-Xylene	ug/L		4000	4000	23400	23200	98	92	80-122	1	20	
Toluene	ug/L		4000	4000	4480	4380	110	108	80-120	2	20	
a,a,a-Trifluorotoluene (S)	%						101	100	80-124			

Date: 11/19/2008 12:13 PM

REPORT OF LABORATORY ANALYSIS

Page 6 of 8







Pace Analytical Services, Inc. 1241 Bellevue Street - Suite 9 Green Bay, WI 54302 (920)469-2436

#### **QUALIFIERS**

Project:

5340045.600 FHR-JCT DITCH PJT

Pace Project No.: 4011473

#### DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

**DUP - Sample Duplicate** 

RPD - Relative Percent Difference

NC - Not Calculable.

Pace Analytical is NELAP accredited. Contact your Pace PM for the current list of accredited analytes.







#### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project:

5340045.600 FHR-JCT DITCH PJT

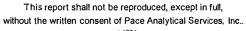
Pace Project No.: 4011473

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
4011473001	DITCHWATER - NORTH	TPH WI GRO/PVOC 8021	GCV/2630		
4011473002	DITCHWATER - SOUTH	TPH WI GRO/PVOC 8021	GCV/2630		
4011473003	TRIP BLANK	TPH WI GRO/PVOC 8021	GCV/2630		

Date: 11/19/2008 12:13 PM

REPORT OF LABORATORY ANALYSIS

Page 8 of 8





Client Name: Tetra , FaceAnalytical Project # 4011473 Courier: Fed Ex UPS USPS Client Commercial Pace Other Die Date. Tracking #: Refere Custody Seal on Cooler/Box Present: yes no Seals intact: / yes ☐ Bubble Bags ☐ None ☐ Other Packing Material: Bubble Wrap Type of Ice: (Wet ) Blue None Samples on ice, cooling process has begun Thermometer Used Date and Initials of person examining Biological Tissue is Frozen: Yes No RO۱ **Cooler Temperature** contents: <u>6 11/14/88</u> Temp should be above freezing to 6°C Comments: ØYes □No □N/A 1. Chain of Custody Present: ØYes □No □N/A 2. Chain of Custody Filled Out: ØYes □No □NA 3. Chain of Custody Relinquished: Sampler Name & Signature on COC: ØYes □No □N/A 4. A Yes □No □N/A 5. Samples Arrived within Hold Time: □Yes ☑No. □N/A 6. Short Hold Time Analysis (<72hr): Rush Turn Around Time Requested: DYes ØNo □N/A 7. ØYøs □no □n/a 8. Sufficient Volume: ØYes □No □N/A 9. Correct Containers Used: -Pace Containers Used: ØYes □No □N/A Containers Intact: ZYes □No □N/A 10. Filtered volume received for Dissolved tests □Yes □No ØN/A 111. ØYes □No □N/A Sample Labels match COC: -Includes date/time/ID/Analysis Matrix: All containers needing preservation have been checked. □Yes □No ØNA 13. All containers needing preservation are found to be in ☐Yes ☐No ☐N/A compliance with EPA recommendation. Initial when Lot # of added □Yes □No exceptions: VOA, coliform, TOC, O&G, WI-DRO (water) completed preservative Samples checked for dechlorination: □Yes □No □NA 14. Headspace in VOA Vials ( >6mm): □Yes 12No □NA 15. ☑Yes □No Trip Blank Present: ☑Yes ☐No ☐N/A Trip Blank Custody Seals Present Pace Trip Blank Lot # (if purchased): Client Notification/ Resolution: Y / N Field Data Required? Person Contacted: Date/Time: Comments/ Resolution:

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

**Project Manager Review:** 

11-14.08

Date:

(	'Please Print Clearly)			-						.,.	UPPER	MIDWES	TRE	<u>GION</u>		Page	1 of	
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Branch/Location:	WAUSAU,		-/-	Pi	ace.	Ana	lytici celebs o	<b>21</b> or:					_		COC No.		J2031	_
Project Contact:	Marsha													Quote #:				
Phone:			1	C	HA	IN	OF	Cl	US'	TO	DY			Mail To Contact:	W	woha		
Project Number:	15340045.600		A=None	B=HC	L C=		Preserva D=HNO3			=Methan	ol G=Na	ıОН		Mail To Company:		7		
Project Name:	FHR-TCT Ditch Pit	ì	H=Sodium	n Bisulfat	e Solutio	on	1=Sodium	Thiosulf	ate J=	Other				Mall To Address:				
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Email #2:	·	Relinquish	ed By:				Det	te/Time:			Received	I Byr		Date/Time:		1 .	e Receipt pH / Adjusted	
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April 22, 2009

Marsha Meurette Tetra Tech, INC. 555 South 72nd Avenue Wausau, WI 54401

RE: Project: 114-340136.100 FHR-JCT DITCH

Pace Project No.: 4016162

#### Dear Marsha Meurette:

Enclosed are the analytical results for sample(s) received by the laboratory on April 17, 2009. The results relate only to the samples included in this report. Results reported herein conform to the most current NELAC standards, where applicable, unless otherwise narrated in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Brian Basten

brian.basten@pacelabs.com

**Project Manager** 

Enclosures





#### **CERTIFICATIONS**

Project:

114-340136.100 FHR-JCT DITCH

Pace Project No.:

4016162

**Green Bay Certification IDs** 

Wisconsin DATCP Certification #: 105-444
Wisconsin DATCP Certification #: 105-444
Wisconsin Certification #: 405132750
Wisconsin Certification #: 405132750
South Carolina Certification #: 83006001
South Carolina Certification #: 83006001
North Dakota Certification #: R-200
North Dakota Certification #: R-150
North Carolina Certification #: 503
North Carolina Certification #: 503
New York Certification #: 11887

New York Certification #: 11888
Minnesota Certification #: 055-999-334
Minnesota Certification #: 055-999-334
Louisiana Certification #: 04169
Louisiana Certification #: 04168
Kentucky Certification #: 83
Kentucky Certification #: 82
Illinois Certification #: 200051
Illinois Certification #: 200050
Florida/NELAP Certification #: E87948

REPORT OF LABORATORY ANALYSIS

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#### **SAMPLE SUMMARY**

Project:

114-340136.100 FHR-JCT DITCH

Pace Project No.:

4016162

Lab ID	Sample ID	Matrix	Date Collected	Date Received
4016162001	NORTH DITCH H2O	Water	04/16/09 14:15	04/17/09 09:30
4016162002	SOUTH DITCH H2O	Water	04/16/09 14:30	04/17/09 09:30
4016162003	TRIP BLANK	Water	04/16/09 00:00	04/17/09 09:30







### **SAMPLE ANALYTE COUNT**

Project:

114-340136.100 FHR-JCT DITCH

Pace Project No.: 4016162

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
4016162001	NORTH DITCH H2O	WI MOD GRO	PMS	9	PASI-G
4016162002	SOUTH DITCH H2O	WI MOD GRO	PMS	9	PASI-G
4016162003	TRIP BLANK	WI MOD GRO	PMS	9	PASI-G







Project:

114-340136.100 FHR-JCT DITCH

Pace Project No.: 4016162

Sample: NORTH DITCH H2O	LabID: 4	016162001	Collecte	d: 04/16/09	9 14:15	Received: 04	/17/09 09:30 M	atrix: Water	
Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
WIGRO GCV	Analytical M	ethod: WI M	OD GRO						
Benzene	<0.23 ug/l	L	1.0	0.23	1		04/21/09 16:08	71-43-2	
Ethylbenzene	<0.40 ug/l	_	1.0	0.40	1		04/21/09 16:08	100-41-4	
Methyl-tert-butyl ether	<0.36 ug/l	_	1.0	0.36	1		04/21/09 16:08	1634-04-4	
Toluene	<0.36 ug/l	_	1.0	0.36	1		04/21/09 16:08	108-88-3	
1,2,4-Trimethylbenzene	<0.39 ug/l	_	1.0	0.39	1		04/21/09 16:08	95-63-6	
1,3,5-Trimethylbenzene	<0.40 ug/l	_	1.0	0.40	1		04/21/09 16:08	108-67-8	
m&p-Xylene	<0.74 ug/l	L	2.0	0.74	1		04/21/09 16:08	1330-20-7	
o-Xylene	<0.36 ug/l	_	1.0	0.36	1		04/21/09 16:08	95-47-6	
a,a,a-Trifluorotoluene (S)	99 %		80-120		1		04/21/09 16:08	98-08-8	

Date: 04/22/2009 01:48 PM

**REPORT OF LABORATORY ANALYSIS** 

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Project:

114-340136.100 FHR-JCT DITCH

Pace Project No.:

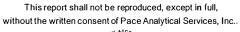
4016162

Sample: SOUTH DITCH H2O	Lab ID:	4016162002	Collecte	d: 04/16/09	14:30	Received: 04	1/17/09 09:30 M	atrix: Water	_
Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
WIGRO GCV	Analytica	l Method: WI Mo	OD GRO						
Benzene	<b>&lt;0.23</b> ι	ug/L	1.0	0.23	1		04/21/09 16:34	71-43-2	
Ethylbenzene	<0.40 ≀	ug/L	1.0	0.40	1		04/21/09 16:34	100-41-4	
Methyl-tert-butyl ether	<0.36 t	ug/L	1.0	0.36	1		04/21/09 16:34	1634-04-4	
Toluene	<b>&lt;0.36</b> ι	ug/L	1.0	0.36	1		04/21/09 16:34	108-88-3	
1,2,4-Trimethylbenzene	<0.39 t	ug/L	1.0	0.39	1		04/21/09 16:34	95-63-6	
1,3,5-Trimethylbenzene	<0.40 t	ug/L	1.0	0.40	1		04/21/09 16:34	108-67-8	
m&p-Xylene	<0.74 t	ug/L	2.0	0.74	1		04/21/09 16:34	1330-20-7	
o-Xylene	<0.36 t	ig/L	1.0	0.36	1		04/21/09 16:34	95-47-6	
a,a,a-Trifluorotoluene (S)	101 9	%	80-120		1		04/21/09 16:34	98-08-8	

Date: 04/22/2009 01:48 PM

**REPORT OF LABORATORY ANALYSIS** 

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04/21/09 16:59 98-08-8



### **ANALYTICAL RESULTS**

Project:

114-340136.100 FHR-JCT DITCH

101 %

Pace Project No.: 4016162

a,a,a-Trifluorotoluene (S)

Sample: TRIP BLANK	Lab ID:	4016162003	Collecte	d: 04/16/09	9 00:00	Received: 04	4/17/09 09:30 M	atrix: Water	
Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
WIGRO GCV	Analytica	l Method: Wi M	OD GRO						
Benzene	<0.23 (	ug/L	1.0	0.23	1		04/21/09 16:59	71-43-2	
Ethylbenzene	<0.40 t	ug/L	1.0	0.40	1		04/21/09 16:59	100-41-4	
Methyl-tert-butyl ether	<0.36 t	ug/L	1.0	0.36	1		04/21/09 16:59	1634-04-4	
Toluene	<0.36 t	ug/L	1.0	0.36	1		04/21/09 16:59	108-88-3	
1,2,4-Trimethylbenzene	<0.39 t	ug/L	1.0	0.39	1		04/21/09 16:59	95-63-6	
1,3,5-Trimethylbenzene	<0.40 t	ıg/L	1.0	0.40	1		04/21/09 16:59	108-67-8	
m&p-Xylene	<0.74 t	ıg/L	2.0	0.74	1		04/21/09 16:59	1330-20-7	
o-Xvlene	<0.36 t	ua/l	1.0	0.36	1		04/21/09 16:59	95-47-6	

80-120

Date: 04/22/2009 01:48 PM





### **QUALITY CONTROL DATA**

Project:

QC Batch:

114-340136.100 FHR-JCT DITCH

Pace Project No.: 4016162

GCV/3267

Analysis Method:

WI MOD GRO

QC Batch Method:

WI MOD GRO

Analysis Description:

WIGRO GCV Water

Associated Lab Samples: 4016162001, 4016162002, 4016162003

METHOD BLANK: 147897

Matrix: Water

Associated Lab Samples: 4016162001, 4016162002, 4016162003

		Blank	Reporting		
Parameter	Units	Result	Limit	Analyzed	Qualifiers
1,2,4-Trimethylbenzene	ug/L	<0.39	1.0	04/21/09 12:16	
1,3,5-Trimethylbenzene	ug/L	< 0.40	1.0	04/21/09 12:16	
Benzene	ug/L	<0.23	1.0	04/21/09 12:16	
Ethylbenzene	ug/L	<0.40	1.0	04/21/09 12:16	
m&p-Xylene	ug/L	<0.74	2.0	04/21/09 12:16	
Methyl-tert-butyl ether	ug/L	< 0.36	1.0	04/21/09 12:16	
o-Xylene	ug/L	< 0.36	1.0	04/21/09 12:16	
Toluene	ug/L	< 0.36	1.0	04/21/09 12:16	
a,a,a-Trifluorotoluene (S)	%	100	80-120	04/21/09 12:16	

LABORATORY CONTROL SAM	PLE & LCSD: 147898		14	7899						
		Spike	LCS	LCSD	LCS	LCSD	% Rec		Max	
Parameter	Units	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qualifiers
1,2,4-Trimethylbenzene	ug/L	20	19.8	19.7	99	99	80-120	.3	20	
1,3,5-Trimethylbenzene	ug/L	20	19.8	19.9	99	100	80-120	.7	20	
Benzene	ug/L	20	19.6	19.6	98	98	80-120	.2	20	
Ethylbenzene	ug/L	20	19.4	19.4	97	97	80-120	.1	20	
m&p-Xylene	ug/L	40	38.6	38.8	96	97	80-120	.5	20	
Methyl-tert-butyl ether	ug/L	20	20.2	20.1	101	101	80-120	.5	20	
o-Xylene	ug/L	20	19.4	19.5	97	97	80-120	.4	20	
Toluene	ug/L	20	19.6	19.5	98	98	80-120	.4	20	
a,a,a-Trifluorotoluene (S)	%				100	99	80-120			

Date: 04/22/2009 01:48 PM







### **QUALIFIERS**

Project:

114-340136.100 FHR-JCT DITCH

Pace Project No.: 4016162

### **DEFINITIONS**

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

**DUP - Sample Duplicate** 

RPD - Relative Percent Difference

NC - Not Calculable.

Pace Analytical is NELAP accredited. Contact your Pace PM for the current list of accredited analytes.

U - Indicates the compound was analyzed for, but not detected.

#### **LABORATORIES**

PASI-G Pace Analytical Services - Green Bay

### **BATCH QUALIFIERS**

Batch: GCV/3267

[1] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

Date: 04/22/2009 01:48 PM







### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project:

114-340136.100 FHR-JCT DITCH

Pace Project No.:

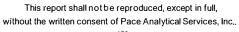
4016162

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
4016162001	NORTH DITCH H2O	WI MOD GRO	GCV/3267		
4016162002	SOUTH DITCH H2O	WI MOD GRO	GCV/3267		
4016162003	TRIP BLANK	WI MOD GRO	GCV/3267		

Date: 04/22/2009 01:48 PM

**REPORT OF LABORATORY ANALYSIS** 

Page 10 of 10





Samples checked for dechlorination;	Courier: Fed Ex UPS USPS Client Commercial Pace Other Tracking #:  Custody Seal on Cooler/Box Present: Ayes no Seals Intact: Ayes no	S <sub>i</sub>	ample Conditi	on Upon Re <mark>c</mark> eip	t	
Tracking #:  Custody Seal on Cooler/Box Present:	Tracking #:  Custody Seal on Cooler/Box Present:	Pace Analytical Client Name	e: <u>Tetua</u>	- Tech	Project #	4016162
Custody Seal on Cooler/Box Present:	Acking Material: Bubble Wrap Thermometer Used Type of ice: Wet Blue None Biological Tissue is Frozen: Yes No Comments:  Chain of Custody Present: Chain of Custody Filled Out: Chain of Custody Relinquished: Chain of Custody Relinquished: Chain of Custody Relinquished: Chain of Custody Relinquished: Chain of Custody Relinquished: Samples Arrived within Hold Time: Short Hold Time Analysis (<72hr):  Rush Turn Around Time Requested: Correct Containers Used: Presc No DNA 8. Correct Containers Used: Containers Intact:  Containers Intact:  Containers Intact:  Containers Intact:  Containers Intact:  Containers needing preservation have been checked.  All containers needing preservation are found to be in completed  Conceptions: VOA, celfom, TOC, O&G, Wi-DRO (water)  Samples on toe, cooling process has begur  Type of ice: Wet Blue None Blological Tissue is Frozen: Yes No Comments:  Commen	Tunalilian H.	· .			nciu Engeloùalearia
Packing Material: Bubble Wrap Thermometer Used Cooler Temperature Temp should be above freezing to 6°C Chain of Custody Present: Chain of Custody Filled Out: Chain of Custody Filled Out: Chain of Custody Relinquished: Sampler Name & Signature on COC: Sampler Name & Signature on COC: Sys DNo DNA 4.  Sampler Name & Signature on COC: Sys DNo DNA 5. Short Hold Time Analysis (472hr): Rush Turn Around Time Requested: Pace Containers Used: Pac	Packing Material:  Bubble Wrap Thermometer Used  Cooler Temperature Temp should be above freezing to 6°C  Chain of Custody Present: Chain of Custody Filled Out: Chain of Custody Relinquished: Chain of Custody Relinqui	Custody Seal on Cooler/Box Present: yes	no Se	als Intact: yes		
Biological Tissue is Frozen: Yes No Comments:   Date and Initials of person examining contents:   Chain of Custody Present:   Dave   Divo	Cooler Temperature Temp should be above freezing to 6°C Chain of Custody Present: Chain of Custody Present: Chain of Custody Filled Out: Chain of Custody Relinquished: Chain of Custody R	Packing Material: Bubble Wrap Bubbl	e Bags 🔲 None			
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Rush Turn Around Time Requested:	Rush Turn Around Time Requested:    Yes   No   N/A   8.	Short Hold Time Analysis (<72hr):	Yes ONO ON	/A 6,	-	
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Containers Intact:    Page   No   NNA   10.	Containers Intact:  Filtered volume received for Dissolved tests  Yes No NiA 11.  Sample Labels match COC:  Includes date/time/ID/Analysis Matrix:  All containers needing preservation have been checked.  Includes date/time/ID/Analysis Matrix:  All containers needing preservation are found to be in compliance with EPA recommendation.  Initial when completed  Samples checked for dechlorination:  Yes No NiA 14.	Correct Containers Used:	YZYes ONO ON	/A 9.		
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Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

Project Manager Review:

Date:

4-17-09

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## APPENDIX B PROJECT PHOTO LOG





 Looking south from south entrance of FHR Junction City Terminal. Ditch regraded, seeded and covered for stabilization. STH "34" east shoulder work still in progress



2.) Looking south from south entrance/exit drive of FHR Junction City Terminal. Ditch grading completed with STH "34" construction in progress.





3.) Looking North from STH "10" and STH "34" intersection. Regrading and stabilization completed. Dike discharge drainage reconstruction completed on southwest corner of site with STH "34" construction in progress.



4.) Looking North across STH "10" at reconstructed ditch on West side of FHR Junction City Terminal. STH "34" construction in progress.





5.) Looking south from south entrance drive at ditch on west site of FHR Junction City Terminal on April, 25, 2008 during surface water sampling event.



6.) Surface water accumulation in Ditch on west side of FHR Junction. Terminal on prior to sampling event on April 25, 2008.





7.) "North" ditch sampling location at FHR Junction City Terminal west side on April 25, 2008.

## APPENDIX C METHODS AND PROCEDURES



## APPENDIX C METHODS AND PROCEDURES STH 34 DITCH ASSESSMENT TETRA TECH #114-341316.100

### **Geoprobe Soil Borings**

Soil probe borings were advanced and temporary water table monitoring points were installed by SGS, Inc. using a truck-mounted Geoprobe® unit. The probes were advanced using a 1" sampler 4 feet in length. Each probe was continuously sampled with soil samples retrieved in 4-foot long Teflon sleeves until reaching the prescribed borehole depth, boring refusal, or groundwater. Soil samples were composited at 2-foot intervals and prepared for field screening and/or laboratory submittal. Boreholes were backfilled with bentonite chips in accordance with WDNR requirements. Remnant soil cuttings were placed in a 55 gallon drum at the facility used for interim storage of materials associated with their operations waste stream. Samples of this material were submitted for waste characterization purposes and disposed of in accordance with regulatory requirements

### Soil Screening

The soils were screened with a MiniRae PID equipped with an 10.2 eV lamp and calibrated for direct reading in ppm of total organic vapors using an isobutylene standard. A self-sealing plastic bag (Zip-Loc type) was filled with the sample and tightly sealed. Headspace was then allowed to equilibrate based on the following field conditions:

Ambient Outside Temperature At Time of Sample Collection	Minimum Amount of Time Air Sample Must Equilibrate at 70°F or Greater Temperature*
<b>  &lt;</b> 40 °F	40 min
40 – 55 °F	20 min
54 – 69 °F	10 min
> 70 °F	5 min

<sup>\*</sup> Headspace samples were warmed out of direct sunlight by bringing them into a heated environment. At temperatures less than 55°F, headspace sample equilibration time can be reduced to 10 minutes through the use of a 70°F water bath. Following equilibration, an organic vapor reading was collected by partially opening the bag's seal and inserting the instrument probe into the headspace.

### Sampling and Chain of Custody

Soil samples were collected using laboratory prepared sample jars. Weighed soil samples were placed in the pre-tared jars and preservative added as per analytical requirements or placed in the jar with zero headspace. All samples collected were cooled during field activities and en route to the laboratory by storing them on ice in a portable cooler, with as few people as possible handled the samples. Upon completion of the sampling procedure, a chain of custody log was initiated.

Water samples were collected from the borehole/temporary well employing a peristaltic pump with dedicated tubing. Surface water samples were obtained employing a clean sampling vessel to make the initial collection and transferring it to the laboratory prepared sampling container. Lab sample containers (including preservative, if warranted) included prepared 40-ml glass vials and/or 1-liter glass bottles.

All samples collected were cooled during field activities and en route to the laboratory by storing them on ice in a portable cooler. Upon completion of the sampling procedure, a chain of custody log was initiated.

The chain of custody record includes the following information: project name, work order number, shipped by, shipped to, sampling point, location, field ID number, date and time taken, sample type, number of containers, analysis required, sampler(s) signature (s), etc. Ambient air temperature, sample condition inside of shipping/travel container was also recorded upon receipt at laboratory or recorded as "shipped on ice".

### **Analytical Procedures**

Analytical procedures may have included one or more of the following methodologies for soil samples:

ANALYTICAL PROCEDURES - SOIL	
Wisconsin Modified DRO	Diesel Range Organics (DRO)
Wisconsin Modified GRO	Gasoline Range Organics (GRO)
EPA Methodology SW846-5030B / 8021	Petroleum Volatile Organic Compounds (PVOC) + Naphthalene

## APPENDIX D SOIL BORING LOGS

### SOIL BORING LOG INFORMATION

Form 4400-122 Rev. 7-98

			Ro	oute To:	Watershed/V Remediation			Waste Other		gement								
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### SOIL BORING LOG INFORMATION

Form 4400-122 Rev. 7-98

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### SOIL BORING LOG INFORMATION

Form 4400-122 Rev. 7-98

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### SOIL BORING LOG INFORMATION

Form 4400-122 Rev. 7

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### SOIL BORING LOG INFORMATION Form 4400-122 Rev. 7-98

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### **SOIL BORING LOG INFORMATION** Form 4400-122 Rev. 7-98

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### APPENDIX E SOIL AND GROUNDWATER ANALYTICAL REPORT





October 22, 2009

Marsha Meurette Tetra Tech, INC. 555 South 72nd Avenue Wausau, WI 54401

RE: Project: 114-340316.100 HWY 34 DITCH

Pace Project No.: 4024021

### Dear Marsha Meurette:

Enclosed are the analytical results for sample(s) received by the laboratory on October 15, 2009. The results relate only to the samples included in this report. Results reported herein conform to the most current NELAC standards, where applicable, unless otherwise narrated in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Brian Basten

brian.basten@pacelabs.com Project Manager

Enclosures





Pace Analytical Services, Inc. 1241 Bellevue Street - Suite 9 Green Bay, WI 54302 (920)469-2436

### **CERTIFICATIONS**

Project:

114-340316.100 HWY 34 DITCH

Pace Project No.:

4024021

**Green Bay Certification IDs** 

California Certification #: 09268CA Florida/NELAP Certification #: E87948 Illinois Certification #: 200050

Kentucky Certification #: 82 Kentucky Certification #: 83 Louisiana Certification #: 04168 Minnesota Certification #: 055-999-334

New York Certification #: 11887 New York Certification #: 11888 North Carolina Certification #: 503 North Dakota Certification #: R-150 South Carolina Certification #: 83006001 Wisconsin Certification #: 405132750 Wisconsin DATCP Certification #: 105-444





### **SAMPLE SUMMARY**

Project: 114-340316.100 HWY 34 DITCH

Pace Project No.: 4024021

Lab ID	Sample ID	Matrix	Date Collected	Date Received
4024021001	GPW-1	Water	10/13/09 10:20	10/15/09 09:20
4024021002	GP-2 @-6FT	Solid	10/13/09 10:45	10/15/09 09:20
4024021003	GPW-2	Water	10/13/09 10:55	10/15/09 09:20
4024021004	GP-3 @-3FT.	Solid	10/13/09 11:20	10/15/09 09:20
4024021005	GPW-3	Water	10/13/09 11:30	10/15/09 09:20
4024021006	GPW-4	Water	10/13/09 13:15	10/15/09 09:20
4024021007	GPW-5	Water	10/13/09 13:10	10/15/09 09:20
4024021008	GPW-6	Water	10/13/09 14:10	10/15/09 09:20
4024021009	DITCH WATER	Water	10/13/09 13:15	10/15/09 09:20
4024021010	MEOH BLANK	Solid	10/13/09 14:00	10/15/09 09:20





### **SAMPLE ANALYTE COUNT**

Project:

114-340316.100 HWY 34 DITCH

Pace Project No.: 4024021

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
4024021001	GPW-1	WI MOD GRO	PMS	10	PASI-G
4024021002	GP-2 @-6FT	ASTM D2974-87	AG	1	PASI-G
		WI MOD GRO	PMS	10	PASI-G
4024021003	GPW-2	WI MOD GRO	PMS	10	PASI-G
4024021004	GP-3 @-3FT.	ASTM D2974-87	AG	1	PASI-G
		WI MOD GRO	PMS	10	PASI-G
4024021005	GPW-3	WI MOD GRO	PMS	10	PASI-G
4024021006	GPW-4	WI MOD GRO	PMS	10	PASI-G
4024021007	GPW-5	WI MOD GRO	PMS	10	PASI-G
4024021008	GPW-6	WI MOD GRO	PMS	10	PASI-G
4024021009	DITCH WATER	WI MOD GRO	PMS	10	PASI-G
4024021010	MEOH BLANK	WI MOD GRO	PMS	10	PASI-G





Project: 114-340316.100 HWY 34 DITCH

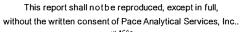
Pace Project No.: 4024021

Date: 10/22/2009 02:44 PM

Sample: GPW-1	Lab ID:	4024021001	Collecte	d: 10/13/09	10:20	Received: 10	/15/09 09:20 Ma	atrix: Water	
Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
WIGRO GCV	Analytica	al Method: WI M	OD GRO						
Benzene	1380	ug/L	10.0	2.3	10		10/16/09 14:42	71-43-2	M0
Ethylbenzene	353	ug/L	10.0	4.0	10		10/16/09 14:42	100-41-4	
Gasoline Range Organics	5650	ug/L	500	262	10		10/16/09 14:42		
Methyl-tert-butyl ether	12.2	ug/L	10.0	3.6	10		10/16/09 14:42	1634-04-4	
Toluene	121	ug/L	10.0	3.6	10		10/16/09 14:42	108-88-3	
1,2,4-Trimethylbenzene	225	ug/L	10.0	3.9	10		10/16/09 14:42	95-63-6	
1,3,5-Trimethylbenzene	84.1	ug/L	10.0	4.0	10		10/16/09 14:42	108-67-8	
m&p-Xylene	409	•	20.0	7.4	10		10/16/09 14:42	1330-20-7	
o-Xylene	87.4	ug/L	10.0	3.6	10		10/16/09 14:42	95-47-6	
a,a,a-Trifluorotoluene (S)	93	•	80-120		10		10/16/09 14:42	98-08-8	

**REPORT OF LABORATORY ANALYSIS** 

Page 5 of 19









Project:

114-340316.100 HWY 34 DITCH

Pace Project No.: 4024021

Sample: GP-2 @-6FT

Lab ID: 4024021002

Collected: 10/13/09 10:45 Received: 10/15/09 09:20 Matrix: Solid

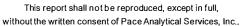
Results reported on a "dry-weight" basis

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
WIGRO GCV	Analytica	I Method: WI	MOD GRO PI	reparation N	∕lethod	t: TPH GRO/PVO	C WI ext.		
Benzene	<25.0 u	ıg/kg	60.0	25.0	1	10/21/09 10:54	10/22/09 00:11	71-43-2	W
Ethylbenzene	<b>&lt;25.0</b> t	ıg/kg	60.0	25.0	1	10/21/09 10:54	10/22/09 00:11	100-41-4	W
Gasoline Range Organics	4.0 r	ng/kg	2.9	2.9	1	10/21/09 10:54	10/22/09 00:11		
Methyl-tert-butyl ether	<b>&lt;25.0</b> ι	ıg/kg	60.0	25.0	1	10/21/09 10:54	10/22/09 00:11	1634-04-4	W
Toluene	<b>&lt;25.0</b> ι	ıg/kg	60.0	25.0	1	10/21/09 10:54	10/22/09 00:11	108-88-3	W
1,2,4-Trimethylbenzene	38.8J u	ıg/kg	68.9	28.7	1	10/21/09 10:54	10/22/09 00:11	95-63-6	Z2
1,3,5-Trimethylbenzene	<b>31.4J</b> ι	ıg/kg	68.9	28.7	1	10/21/09 10:54	10/22/09 00:11	108-67-8	Z2
m&p-Xylene	<50.0 ເ	ıg/kg	120	50.0	1	10/21/09 10:54	10/22/09 00:11	1330-20-7	W
o-Xylene	<b>&lt;25.0</b> ι		60.0	25.0	1	10/21/09 10:54	10/22/09 00:11	95-47-6	W
a,a,a-Trifluorotoluene (S)	96 %	%	80-120		1	10/21/09 10:54	10/22/09 00:11	98-08-8	
Percent Moisture	Analytical	Method: AS	TM D2974-87						
Percent Moisture	13.0 %	%	0.10	0.10	1		10/21/09 08:26		

Date: 10/22/2009 02:44 PM

REPORT OF LABORATORY ANALYSIS

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Project:

114-340316.100 HWY 34 DITCH

Pace Project No.: 4024021

Sample: GPW-2	Lab ID:	4024021003	Collecte	d: 10/13/09	10:55	Received: 10/	/15/09 09:20 Ma	atrix: Water	
Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
WIGRO GCV	Analytical I	Method: WI M	OD GRO						
Benzene	<b>207</b> ug	g/L	1.0	0.23	1		10/16/09 18:59	71-43-2	
Ethylbenzene	<b>20.9</b> ug	g/L	1.0	0.40	1		10/16/09 18:59	100-41-4	
Gasoline Range Organics	<b>858</b> ug	g/L	50.0	26.2	1		10/16/09 18:59		HS
Methyl-tert-butyl ether	<b>6.9</b> ug	g/L	1.0	0.36	1		10/16/09 18:59	1634-04-4	
Toluene	<b>1.8</b> ug	g/L	1.0	0.36	1		10/16/09 18:59	108-88-3	
1,2,4-Trimethylbenzene	<b>12.4</b> ug	g/L	1.0	0.39	1		10/16/09 18:59	95-63-6	
1,3,5-Trimethylbenzene	<b>8.2</b> ug	g/L	1.0	0.40	1		10/16/09 18:59	108-67-8	
m&p-Xylene	<b>6.7</b> ug	g/L	2.0	0.74	1		10/16/09 18:59	1330-20-7	
o-Xylene	1.4 ug	g/L	1.0	0.36	1		10/16/09 18:59	95-47-6	
a,a,a-Trifluorotoluene (S)	95 %	)	80-120		1		10/16/09 18:59	98-08-8	HS

Date: 10/22/2009 02:44 PM







Project:

114-340316.100 HWY 34 DITCH

Pace Project No.: 4024021

Sample: GP-3 @-3FT.

Lab ID: 4024021004

Collected: 10/13/09 11:20 Received: 10/15/09 09:20 Matrix: Solid

Results reported on a "dry-weight" basis

Results Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
Analytical Method	: WI MOD GRO P	reparation N	Method	I: TPH GRO/PVO	CWI ext.		
<25.0 ug/kg	60.0	25.0	1	10/21/09 10:54	10/22/09 00:37	71-43-2	W
<25.0 ug/kg	60.0	25.0	1	10/21/09 10:54	10/22/09 00:37	100-41-4	W
<3.0 mg/kg	3.0	3.0	1	10/21/09 10:54	10/22/09 00:37		
<25.0 ug/kg	60.0	25.0	1	10/21/09 10:54	10/22/09 00:37	1634-04-4	W
<b>151</b> ug/kg	72.2	30.1	1	10/21/09 10:54	10/22/09 00:37	108-88-3	Z2
<25.0 ug/kg	60.0	25.0	1	10/21/09 10:54	10/22/09 00:37	95-63-6	W
<25.0 ug/kg	60.0	25.0	1	10/21/09 10:54	10/22/09 00:37	108-67-8	W
<50.0 ug/kg	120	50.0	1	10/21/09 10:54	10/22/09 00:37	1330-20-7	W
<25.0 ug/kg	60.0	25.0	1	10/21/09 10:54	10/22/09 00:37	95-47-6	W
95 %	80-120		1	10/21/09 10:54	10/22/09 00:37	98-08-8	
Analytical Method	: ASTM D2974-87						
16.9 %	0.10	0.10	1		10/21/09 08:26		
	Analytical Method  <25.0 ug/kg  <25.0 ug/kg  <3.0 mg/kg  <25.0 ug/kg  151 ug/kg  <25.0 ug/kg  <25.0 ug/kg  <50.0 ug/kg  <50.0 ug/kg  <50.0 ug/kg  Analytical Method	Analytical Method: WI MOD GRO F  <25.0 ug/kg 60.0  <25.0 ug/kg 60.0  <3.0 mg/kg 3.0  <25.0 ug/kg 60.0  151 ug/kg 72.2  <25.0 ug/kg 60.0  <25.0 ug/kg 60.0  <25.0 ug/kg 60.0  <25.0 ug/kg 60.0  <50.0 ug/kg 120  <25.0 ug/kg 60.0  Analytical Method: ASTM D2974-87	Analytical Method: WI MOD GRO Preparation No. 25.0 ug/kg 60.0 25.0 cys.0 mg/kg 60.0 25.0 cys.0 mg/kg 3.0 3.0 cys.0 mg/kg 60.0 25.0 cys.0 mg/kg 60.0 25.0 cys.0 mg/kg 72.2 30.1 cys.0 ug/kg 60.0 25.0 cys.0 cys.0 ug/kg 60.0 25.0 cys.0 ug/kg 60.0 25.0 cys.0 ug/kg 60.0 25.0 cys.0 ug/kg 60.0 25.0 cys.0 ug/kg 60.0 25.0 cys.0 ug/kg 60.0 25.0 cys.0 mg/kg 60.0 25.0 cys.0 cys.0 mg/kg 60.0 25.0 cys.0 mg/kg 60.0 25.0 cys.0 mg/kg 60.0 25.0 cys.0 mg/kg 60.0 25.0 cys.0 mg/kg 60.0 25.0 cys.0 mg/kg 60.0 25.0 cys.0 mg/kg 60.0 25.0 cys.0 mg/kg 60.0 25.0 cys.0 mg/kg 60.0 25.0 cys.0 mg/kg 60.0 25.0 cys.0 mg/kg 60.0 25.0 cys.0 mg/kg 60.0 25.0 cys.0 mg/kg 60.0 25.0 cys.0 mg/kg 60.0 25.0 cys.0 mg/kg 60.0 25.0 cys.0 mg/kg 60.0 25.0 cys.0 cys.0 mg/kg 60.0 25.0 cys.0 c	Analytical Method: WI MOD GRO Preparation Method: 425.0 ug/kg 60.0 25.0 1 425.0 ug/kg 60.0 25.0 1 43.0 mg/kg 3.0 3.0 1 425.0 ug/kg 60.0 25.0 1 151 ug/kg 72.2 30.1 1 425.0 ug/kg 60.0 25.0 1 425.0 ug/kg 60.0 25.0 1 425.0 ug/kg 60.0 25.0 1 450.0 ug/kg 60.0 25.0 1 450.0 ug/kg 60.0 25.0 1 450.0 ug/kg 60.0 25.0 1 450.0 ug/kg 60.0 25.0 1 450.0 ug/kg 60.0 25.0 1 450.0 ug/kg 60.0 25.0 1 450.0 ug/kg 60.0 25.0 1 450.0 ug/kg 60.0 25.0 1 450.0 ug/kg 60.0 25.0 1 450.0 ug/kg 60.0 25.0 1 450.0 ug/kg 60.0 25.0 1 450.0 ug/kg 60.0 25.0 1 450.0 ug/kg 60.0 25.0 1 450.0 ug/kg 60.0 25.0 1	Analytical Method: WI MOD GRO Preparation Method: TPH GRO/PVOC  <25.0 ug/kg 60.0 25.0 1 10/21/09 10:54  <25.0 ug/kg 60.0 25.0 1 10/21/09 10:54  <3.0 mg/kg 3.0 3.0 1 10/21/09 10:54  <25.0 ug/kg 60.0 25.0 1 10/21/09 10:54  <25.0 ug/kg 60.0 25.0 1 10/21/09 10:54  151 ug/kg 72.2 30.1 1 10/21/09 10:54  <25.0 ug/kg 60.0 25.0 1 10/21/09 10:54  <25.0 ug/kg 60.0 25.0 1 10/21/09 10:54  <25.0 ug/kg 60.0 25.0 1 10/21/09 10:54  <50.0 ug/kg 120 50.0 1 10/21/09 10:54  <25.0 ug/kg 60.0 25.0 1 10/21/09 10:54  <80.0 ug/kg 120 50.0 1 10/21/09 10:54  Analytical Method: ASTM D2974-87	Analytical Method: WI MOD GRO Preparation Method: TPH GRO/PVOC WI ext.  <25.0 ug/kg 60.0 25.0 1 10/21/09 10:54 10/22/09 00:37  <25.0 ug/kg 60.0 25.0 1 10/21/09 10:54 10/22/09 00:37  <3.0 mg/kg 3.0 3.0 1 10/21/09 10:54 10/22/09 00:37  <25.0 ug/kg 60.0 25.0 1 10/21/09 10:54 10/22/09 00:37  151 ug/kg 72.2 30.1 1 10/21/09 10:54 10/22/09 00:37  <25.0 ug/kg 60.0 25.0 1 10/21/09 10:54 10/22/09 00:37  <25.0 ug/kg 60.0 25.0 1 10/21/09 10:54 10/22/09 00:37  <25.0 ug/kg 60.0 25.0 1 10/21/09 10:54 10/22/09 00:37  <25.0 ug/kg 60.0 25.0 1 10/21/09 10:54 10/22/09 00:37  <50.0 ug/kg 120 50.0 1 10/21/09 10:54 10/22/09 00:37  <25.0 ug/kg 60.0 25.0 1 10/21/09 10:54 10/22/09 00:37  <50.0 ug/kg 60.0 25.0 1 10/21/09 10:54 10/22/09 00:37  95 % 80-120 1 10/21/09 10:54 10/22/09 00:37  Analytical Method: ASTM D2974-87	Analytical Method: WI MOD GRO Preparation Method: TPH GRO/PVOC WI ext.  <25.0 ug/kg 60.0 25.0 1 10/21/09 10:54 10/22/09 00:37 71-43-2 <25.0 ug/kg 60.0 25.0 1 10/21/09 10:54 10/22/09 00:37 100-41-4 <3.0 mg/kg 3.0 3.0 1 10/21/09 10:54 10/22/09 00:37 <25.0 ug/kg 60.0 25.0 1 10/21/09 10:54 10/22/09 00:37 <25.0 ug/kg 60.0 25.0 1 10/21/09 10:54 10/22/09 00:37 1634-04-4 151 ug/kg 72.2 30.1 1 10/21/09 10:54 10/22/09 00:37 108-88-3 <25.0 ug/kg 60.0 25.0 1 10/21/09 10:54 10/22/09 00:37 95-63-6 <25.0 ug/kg 60.0 25.0 1 10/21/09 10:54 10/22/09 00:37 108-67-8 <50.0 ug/kg 60.0 25.0 1 10/21/09 10:54 10/22/09 00:37 1330-20-7 <25.0 ug/kg 60.0 25.0 1 10/21/09 10:54 10/22/09 00:37 95-47-6 95 % 80-120 1 10/21/09 10:54 10/22/09 00:37 98-08-8 Analytical Method: ASTM D2974-87

Date: 10/22/2009 02:44 PM

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Project: 114-340316.100 HWY 34 DITCH

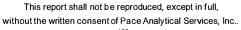
Pace Project No.: 4024021

Date: 10/22/2009 02:44 PM

Sample: GPW-3	Lab ID:	4024021005	Collecte	d: 10/13/09	11:30	Received: 10	/15/09 09:20 Ma	atrix: Water	
Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
WIGRO GCV	Analytica	l Method: WI M	OD GRO						
Benzene	<b>452</b> t	ug/L	2.5	0.57	2.5		10/16/09 19:25	71-43-2	
Ethylbenzene	<b>88.2</b> ι	ug/L	2.5	1.0	2.5		10/16/09 19:25	100-41-4	
Gasoline Range Organics	<b>2110</b> ι	ug/L	125	65.5	2.5		10/16/09 19:25		
Methyl-tert-butyl ether	<b>14.4</b> ι	ug/L	2.5	0.90	2.5		10/16/09 19:25	1634-04-4	
Toluene	<b>8.5</b> ι	ug/L	2.5	0.89	2.5		10/16/09 19:25	108-88-3	
1,2,4-Trimethylbenzene	<b>21.9</b> ເ	ug/L	2.5	0.98	2.5		10/16/09 19:25	95-63-6	
1,3,5-Trimethylbenzene	<b>9.4</b> ι	ug/L	2.5	0.99	2.5		10/16/09 19:25	108-67-8	
m&p-Xylene	<b>35.2</b> t	ug/L	5.0	1.9	2.5		10/16/09 19:25	1330-20-7	
o-Xylene	<b>3.8</b> ι	ug/L	2.5	0.90	2.5		10/16/09 19:25	95-47-6	
a,a,a-Trifluorotoluene (S)	94 9	%	80-120		2.5		10/16/09 19:25	98-08-8	

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Project:

114-340316.100 HWY 34 DITCH

Pace Project No.: 4024021

Sample: GPW-4	Lab ID: 4024021006		Collected: 10/13/09 13:15			Received: 10/15/09 09:20		Matrix: Water	
Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
WIGRO GCV	Analytical Method: WI MOD GRO								
Benzene	<b>113</b> ug/L		1.0	0.23	1		10/16/09 19:51	71-43-2	
Ethylbenzene	<b>5.2</b> ug/L		1.0	0.40	1		10/16/09 19:51	100-41-4	
Gasoline Range Organics	<b>337</b> ug/L		50.0	26.2	1		10/16/09 19:51		
Methyl-tert-butyl ether	9.8 ug/L		1.0	0.36	1		10/16/09 19:51	1634-04-4	
Toluene	<b>1.5</b> ug/L		1.0	0.36	1		10/16/09 19:51	108-88-3	
1,2,4-Trimethylbenzene	2.0 ug/L		1.0	0.39	1		10/16/09 19:51	95-63-6	
1,3,5-Trimethylbenzene	<b>0.49J</b> ug/L		1.0	0.40	1		10/16/09 19:51	108-67-8	
m&p-Xylene	3.5 ug/L		2.0	0.74	1		10/16/09 19:51	1330-20-7	
o-Xylene	<b>0.59J</b> ug/L		1.0	0.36	1		10/16/09 19:51	95-47-6	
a,a,a-Trifluorotoluene (S)	100 %		80-120		1		10/16/09 19:51	98-08-8	

Date: 10/22/2009 02:44 PM





Project: 114-340316.100 HWY 34 DITCH

Pace Project No.: 4024021

Sample: GPW-5	Lab ID: 4024021007		Collected: 10/13/09 13:10			Received: 10/15/09 09:20		atrix: Water	
Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
WIGRO GCV	Analytical Method: WI MOD GRO								
Benzene	<b>1.1</b> ug/L		1.0	0.23	1		10/19/09 11:22	71-43-2	
Ethylbenzene	<0.40 ug/L		1.0	0.40	1		10/19/09 11:22	100-41-4	
Gasoline Range Organics	<b>112</b> ug/L		50.0	26.2	1		10/19/09 11:22		
Methyl-tert-butyl ether	<b>16.3</b> ug/L		1.0	0.36	1		10/19/09 11:22	1634-04-4	
Toluene	<0.36 ug/L		1.0	0.36	1		10/19/09 11:22	108-88-3	
1,2,4-Trimethylbenzene	<b>0.55J</b> ug/L		1.0	0.39	1		10/19/09 11:22	95-63-6	
1,3,5-Trimethylbenzene	<0.40 ug/L		1.0	0.40	1		10/19/09 11:22	108-67-8	
m&p-Xylene	<0.74 ug/L		2.0	0.74	1		10/19/09 11:22	1330-20-7	
o-Xylene	<0.36 ug/L		1.0	0.36	1		10/19/09 11:22	95-47-6	
a,a,a-Trifluorotoluene (S)	97 %		80-120		1		10/19/09 11:22	98-08-8	

Date: 10/22/2009 02:44 PM







#### **ANALYTICAL RESULTS**

Project:

114-340316.100 HWY 34 DITCH

Pace Project No.:

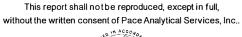
ject No.: 4024021

Sample: GPW-6	Lab ID:	4024021008	Collecte	d: 10/13/0	9 14:10	Received: 10	)/15/09 09:20 M	atrix: Water	
Parameters	Results	Results Units		LOD	DF	Prepared	Analyzed	CAS No.	Qual
WIGRO GCV	Analytical Method: WI MOD		OD GRO						
Benzene	<0.23 t	<0.23 ug/L		0.23	1		10/16/09 20:42	71-43-2	
Ethylbenzene	<0.40 ug/L		1.0	0.40	1		10/16/09 20:42	100-41-4	
Gasoline Range Organics	28.4J ug/L		50.0	26.2	1		10/16/09 20:42		
Methyl-tert-butyl ether	0.71J t	ug/L	1.0	0.36	1		10/16/09 20:42	1634-04-4	
Toluene	<0.36 t	ug/L	1.0	0.36	1		10/16/09 20:42	108-88-3	
1,2,4-Trimethylbenzene	<0.39 u	ıg/L	1.0	0.39	1		10/16/09 20:42	95-63-6	
1,3,5-Trimethylbenzene	<0.40 t	ug/L	1.0	0.40	1		10/16/09 20:42	108-67-8	
m&p-Xylene	<0.74 u	ug/L	2.0	0.74	1		10/16/09 20:42	1330-20-7	
o-Xylene	<0.36 ug/L		1.0	0.36	1		10/16/09 20:42	95-47-6	
a,a,a-Trifluorotoluene (S)	101 %		80-120		1		10/16/09 20:42	98-08-8	

Date: 10/22/2009 02:44 PM

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#### **ANALYTICAL RESULTS**

Project: 114-340316.100 HWY 34 DITCH

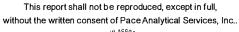
Pace Project No.: 4024021

Date: 10/22/2009 02:44 PM

Sample: DITCH WATER	H WATER Lab ID: 4024021009		Collecte	d: 10/13/09	13:15	Received: 10	/15/09 09:20 M	atrix: Water	
Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
WIGRO GCV	Analytical Method: WI MOD		OD GRO						
Benzene	<0.23 ug/L		1.0	0.23	1		10/16/09 21:08	71-43-2	
Ethylbenzene	<0.40 ug/L		1.0	0.40	1	10/16/09 21:08 100-41-4			
Gasoline Range Organics	<26.2	ug/L	50.0	26.2	1		10/16/09 21:08		
Methyl-tert-butyl ether	0.38J	ug/L	1.0	0.36	1		10/16/09 21:08	1634-04-4	
Toluene	<0.36	ug/L	1.0	0.36	1		10/16/09 21:08	108-88-3	
1,2,4-Trimethylbenzene	<0.39	ug/L	1.0	0.39	1		10/16/09 21:08	95-63-6	
1,3,5-Trimethylbenzene	<0.40	ug/L	1.0	0.40	1		10/16/09 21:08	108-67-8	
m&p-Xylene	<0.74 ug/L		2.0	0.74	1		1330-20-7		
o-Xylene	<0.36	<0.36 ug/L		0.36	1	10/16/09 21:08 95-47-6			
a,a,a-Trifluorotoluene (S)	95 %		80-120		1		10/16/09 21:08	98-08-8	

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#### **ANALYTICAL RESULTS**

Project:

114-340316.100 HWY 34 DITCH

Pace Project No.:

ct No.: 4024021

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Sample: MEOH BLANK Lab ID: 4024021010 Collected: 10/13/09 14:00 Received: 10/15/09 09:20 Matrix: Solid

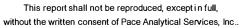
Results reported on a "wet-weight" basis

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
WIGRO GCV	Analytica	l Method: WI	MOD GRO P	reparation N	/lethod	: TPH GRO/PVO	CWI ext.		
Benzene	<25.0 t	ug/kg	60.0	25.0	1	10/21/09 10:54	10/22/09 01:03	71-43-2	W
Ethylbenzene	<25.0 t	ug/kg	60.0	25.0	1	10/21/09 10:54	10/22/09 01:03	100-41-4	W
Gasoline Range Organics	<2.5 r	mg/kg	2.5	2.5	1	10/21/09 10:54	10/22/09 01:03		
Methyl-tert-butyl ether	<b>&lt;25.0</b> t	ug/kg	60.0	25.0	1	10/21/09 10:54	10/22/09 01:03	1634-04-4	W
Toluene	<b>&lt;25.0</b> t	ug/kg	60.0	25.0	1	10/21/09 10:54	10/22/09 01:03	108-88-3	W
1,2,4-Trimethylbenzene	<b>&lt;25.0</b> t	ug/kg	60.0	25.0	1	10/21/09 10:54	10/22/09 01:03	95-63-6	W
1,3,5-Trimethylbenzene	<b>&lt;25.0</b> ≀	ıg/kg	60.0	25.0	1	10/21/09 10:54	10/22/09 01:03	108-67-8	W
m&p-Xylene	<b>&lt;50.0</b> ≀	ıg/kg	120	50.0	1	10/21/09 10:54	10/22/09 01:03	1330-20-7	W
o-Xylene	<b>&lt;25.0</b> t	ug/kg	60.0	25.0	1	10/21/09 10:54	10/22/09 01:03	95-47-6	W
a,a,a-Trifluorotoluene (S)	95 9	%	80-120		1	10/21/09 10:54	10/22/09 01:03	98-08-8	

Date: 10/22/2009 02:44 PM

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#### **QUALITY CONTROL DATA**

Project: 114-340316.100 HWY 34 DITCH

Pace Project No.: 4024021

QC Batch: GCV/4145 Analysis Method: WI MOD GRO
QC Batch Method: WI MOD GRO Analysis Description: WIGRO GCV Water

Associated Lab Samples: 4024021001, 4024021003, 4024021005, 4024021006, 4024021007, 4024021008, 4024021009

METHOD BLANK: 221843 Matrix: Water

Associated Lab Samples: 4024021001, 4024021003, 4024021005, 4024021006, 4024021007, 4024021008, 4024021009

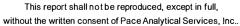
		Blank	Reporting		
Parameter	Units	Result	Limit	Analyzed	Qualifiers
1,2,4-Trimethylbenzene	ug/L	<0.39	1.0	10/16/09 12:59	
1,3,5-Trimethylbenzene	ug/L	< 0.40	1.0	10/16/09 12:59	
Benzene	ug/L	<0.23	1.0	10/16/09 12:59	
Ethylbenzene	ug/L	< 0.40	1.0	10/16/09 12:59	
Gasoline Range Organics	ug/L	<26.2	50.0	10/16/09 12:59	
m&p-Xylene	ug/L	< 0.74	2.0	10/16/09 12:59	
Methyl-tert-butyl ether	ug/L	< 0.36	1.0	10/16/09 12:59	
o-Xylene	ug/L	< 0.36	1.0	10/16/09 12:59	
Toluene	ug/L	< 0.36	1.0	10/16/09 12:59	
a,a,a-Trifluorotoluene (S)	%	96	80-120	10/16/09 12:59	

LABORATORY CONTROL SAMI	PLE & LCSD: 221844		22	21845						
Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
1,2,4-Trimethylbenzene	 ug/L	20	18.3	18.1	92	91	80-120	1	20	
1,3,5-Trimethylbenzene	ug/L	20	18.8	19.1	94	95	80-120	1	20	
Benzene	ug/L	20	18.9	18.9	95	94	80-120	.3	20	
Ethylbenzene	ug/L	20	18.2	18.3	91	91	80-120	.2	20	
Gasoline Range Organics	ug/L	200	200	202	100	101	80-120	.7	20	
m&p-Xylene	ug/L	40	36.8	37.1	92	93	80-120	.8	20	
Methyl-tert-butyl ether	ug/L	20	20.0	19.4	100	97	80-120	3	20	
o-Xylene	ug/L	20	18.4	18.7	92	94	80-120	2	20	
Toluene	ug/L	20	18.8	18.7	94	93	80-120	.4	20	
a,a,a-Trifluorotoluene (S)	%				96	96	80-120			

MATRIX SPIKE & MATRIX SF	PIKE DUPLICAT	E: 22195		221954								
Davida	•	024021001	MS Spike	MSD Spike	MS	MSD	MS	MSD	% Rec	DDD	Max	Overl
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
1,2,4-Trimethylbenzene	ug/L	225	200	200	445	456	110	116	19-186	3	20	
1,3,5-Trimethylbenzene	ug/L	84.1	200	200	289	296	103	106	64-142	2	20	
Benzene	ug/L	1380	200	200	1690	1730	156	173	28-167	2	20	M0
Ethylbenzene	ug/L	353	200	200	581	592	114	120	51-151	2	'20	
m&p-Xylene	ug/L	409	400	400	831	848	106	110	23-175	2	20	
Methyl-tert-butyl ether	ug/L	12.2	200	200	198	209	93	98	77-120	5	20	
o-Xylene	ug/L	87.4	200	200	285	291	99	102	40-154	2	20	
Toluene	ug/L	121	200	200	323	329	101	104	54-151	2	20	
a,a,a-Trifluorotoluene (S)	%						91	91	80-120			

Date: 10/22/2009 02:44 PM REPORT OF LABORATORY ANALYSIS

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Pace Analytical Services, Inc. 1241 Bellevue Street - Suite 9 Green Bay, WI 54302 (920)469-2436

#### **QUALITY CONTROL DATA**

Project:

QC Batch:

114-340316.100 HWY 34 DITCH

Pace Project No.:

4024021

PMST/3207

Analysis Method:

ASTM D2974-87

Analysis Description:

ASTNI D2974-07

Dry Weight/Percent Moisture

QC Batch Method:
Associated Lab Samp

Associated Lab Samples: 4024021002, 4024021004

ASTM D2974-87

SAMPLE DUPLICATE: 223460

Units

4024016007 Result Dup Result

RPD

Max RPD

Qualifiers

Parameter
Percent Moisture

%

41.0

37.4

9

10

Date: 10/22/2009 02:44 PM

REPORT OF LABORATORY ANALYSIS

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#### **QUALITY CONTROL DATA**

Project:

114-340316.100 HWY 34 DITCH

Pace Project No.:

4024021

QC Batch:

GCV/4175

Analysis Method:

WI MOD GRO

QC Batch Method:

TPH GRO/PVOC WI ext.

Analysis Description:

WIGRO Solid GCV

Associated Lab Samples:

4024021002, 4024021004, 4024021010

METHOD BLANK: 223870

Matrix: Solid

Associated Lab Samples: 4024021002, 4024021004, 4024021010

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2,4-Trimethylbenzene	ug/kg	<25.0	60.0	10/21/09 16:03	
1,3,5-Trimethylbenzene	ug/kg	<25.0	60.0	10/21/09 16:03	
Benzene	ug/kg	<25.0	60.0	10/21/09 16:03	
Ethylbenzene	ug/kg	<25.0	60.0	10/21/09 16:03	
Gasoline Range Organics	mg/kg	<2.5	2.5	10/21/09 16:03	
m&p-Xylene	ug/kg	<50.0	120	10/21/09 16:03	
Methyl-tert-butyl ether	ug/kg	<25.0	60.0	10/21/09 16:03	
o-Xylene	ug/kg	<25.0	60.0	10/21/09 16:03	
Toluene	ug/kg	<25.0	60.0	10/21/09 16:03	
a,a,a-Trifluorotoluene (S)	%	97	80-120	10/21/09 16:03	

LABORATORY CONTROL SAM	PLE & LCSD: 223871		22	23872						
		Spike	LCS	LCSD	LCS	LCSD	% Rec		Max	
Parameter	Units	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qualifiers
1,2,4-Trimethylbenzene	ug/kg	1000	970	1020	97	102	80-120	5	20	
1,3,5-Trimethylbenzene	ug/kg	1000	965	1010	96	101	80-120	5	20	
Benzene	ug/kg	1000	890	918	89	92	80-120	3	20	
Ethylbenzene	ug/kg	1000	930	965	93	96	80-120	4	20	
Gasoline Range Organics	mg/kg	10	9.4	9.7	94	97	80-120	4	20	
m&p-Xylene	ug/kg	2000	1900	1990	95	99	80-120	5	20	
Methyl-tert-butyl ether	ug/kg	1000	844	838	84	84	80-120	.8	20	
o-Xylene	ug/kg	1000	947	990	95	99	80-120	4	20	
Toluene	ug/kg	1000	921	957	92	96	80-120	4	20	
a,a,a-Trifluorotoluene (S)	%				96	96	80-120			

Date: 10/22/2009 02:44 PM





Pace Analytical Services, Inc. 1241 Bellevue Street - Suite 9 Green Bay, WI 54302 (920)469-2436

#### **QUALIFIERS**

Project:

114-340316.100 HWY 34 DITCH

Pace Project No.: 4024021

#### **DEFINITIONS**

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

**DUP - Sample Duplicate** 

RPD - Relative Percent Difference

NC - Not Calculable.

Pace Analytical is NELAP accredited. Contact your Pace PM for the current list of accredited analytes.

U - Indicates the compound was analyzed for, but not detected.

#### **LABORATORIES**

PASI-G Pace Analytical Services - Green Bay

#### **ANALYTE QUALIFIERS**

HS	Results are from sample aliquot taken from VOAvial with headspace (air bubble greater than 6 mm diameter).
----	--

M0 Matrix spike recovery and/or matrix spike duplicate recovery was outside laboratory control limits.

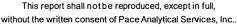
W Non-detect results are reported on a wet weight basis.

Z2 Analyte present in the associated method blank above the detection limit.

Date: 10/22/2009 02:44 PM

**REPORT OF LABORATORY ANALYSIS** 

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#### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 114-340316.100 HWY 34 DITCH

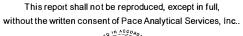
Pace Project No.: 4024021

Date: 10/22/2009 02:44 PM

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
4024021001	GPW-1	WI MOD GRO	GCV/4145	_	
4024021003	GPW-2	WI MOD GRO	GCV/4145		
4024021005	GPW-3	WI MOD GRO	GCV/4145		
4024021006	GPW-4	WI MOD GRO	GCV/4145		
4024021007	GPW-5	WI MOD GRO	GCV/4145		
4024021008	GPW-6	WI MOD GRO	GCV/4145		
4024021009	DITCH WATER	WI MOD GRO	GCV/4145		
4024021002	GP-2 @-6FT	ASTM D2974-87	PMST/3207		
4024021004	GP-3 @-3FT.	ASTM D2974-87	PMST/3207		
4024021002	GP-2 @-6FT	TPH GRO/PVOC WI ext.	GCV/4175	WI MOD GRO	GCV/4176
4024021004	GP-3 @-3FT.	TPH GRO/PVOC WI ext.	GCV/4175	WI MOD GRO	GCV/4176
4024021010	MEOH BLANK	TPH GRO/PVOC WI ext.	GCV/4175	WI MOD GRO	GCV/4176

REPORT OF LABORATORY ANALYSIS

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10	Sample Condition Upon Rec	eipt	
/ Pace Analytical Client N	ame: Tutto Tuch	Project#	4024021
•			1027021
	S Client Commercial C Pace	Other	
Tracking #:	yes no Seals intact: X ye		ial
Custody Seal on Cooler/Box Present:	Yes □ no Seals intact:    Ye     Yes □ no Seals intact: □ ye	1910(2)38(32)	uul We-Date
· ·	Bubble Bags Mone Other	25 [ 110   P10]	
Thermometer Used	Type of Icez Wet Blue Dry No	(100/10/10/10/10/10/10/10/10/10/10/10/10/	
Cooler Temperature	Biological Tissue is Frozen:	· · · · · · · · · · · · · · · · · · ·	
Temp Blank Present: yes X no		no Person examining	contents:
Temp should be above freezing to 6°C for all sar Biota Samples should be received ≤ 0°C.	mple except Bieta.  Comments:	Date: _////////////////////////////////////	##
Chain of Custody Present:	Yøs □No □NA 1.	71)	
Chain of Custody Filled Out:	Xyes □No □N/A 2.		
Chain of Custody Relinquished:	lyss □No □N/A 3.		
Sampler Name & Signature on COC:	ØY€s □No □N/A 4.		
Samples Arrived within Hold Time:	Myes. □Nø □N/A 5.		
Short Hold Time Analysis (<72hr):	□Yes No □N/A 6.		
Rush Turn Around Time Requested:	. □Yes QNo □N/A 7.		•
Sufficient Volume:	Dayes Ono On/A 8.		
Correct Containers Used:	ØYes □No □N/A 9.		
-Pace Containers Used:	XIYes ONO ONA		•
Containers Intact:	OYes □No □N/A 10.		
Filtered volume received for Dissolved test	ts □Yes □No □XA 11.		
Sample Labels match COC:	TIVAS TING TINIA 12 # 002	1004 Soil	
	trix: (1) /5 # 001	1003/005-009 W	
All containers needing preservation are found to compliance with EPA recommendation.	☐Yes ☐No ☐N/A 13. Dibe in ☐Yes ☐No ☐N/A		
·	Initial when Z	Lot # of added	
exceptions: VOA, coliform, TOC, O&G, WI-DRO (water	\/   completed	preservative	
Samples checked for dechlorination:	Yes ONo MN/A 14.	16.00	
Headspace in VOA Vials ( >6mm):	DYYes ONO ONA 152-40 m	101203	
Trip Blank Present	□	oh Blook	
Trip Blank Custody Seals Present	□Yes □No □N/A		
Pace Trip Blank Lot # (if purchased):  Client Notification/ Resolution:		[:410-b 0	ed? Y / N
Person Contacted:	, Date/Time:	Field Data Require	eur i i i
Comments/ Resolution: V Lot	of sediment un Vio	6 for -001, -003	,-005, 4-006
	•		
Project Manager Review:	RK	Date:	10-15-09
Note: Whenever there is a discrepancy affecting North	Carolina compliance samples, a cooy of this form will t		Certification Office (i.e out of hok
incorrect preservative, out of temp, incorrect containers			

	(Please Print Clearly)									•	UPPER MIDW			ر,	Page 1	of /	
Company Name	e: TETRA TECH, ZNC.	· (7E)				4	. 4. 4!	10		ľ	MN: 612-607-	-1700	<b>W</b> I: 920-469-2436			_	
Branch/Locatio	1				ace		UYTIC. aceiabs.c						·		4024	4021	
Project Contact	. 1					•			•			<u> </u>	Quote #:	-			
Phone:	715-845.4100			C	:HA	IN	OF	- CI	UST	01	DY	1	Mail To Contact:	GREG.AL)	RIANCOTETR	RATECH.	ره :
Project Number			A≕Nor	ne B=H	ICL C=H	-	*Preserva D=HNO3	ation Code 3 E=DIV		Methano	oi G=NaOH		Mail To Company:	TE			_
Project Name:	HWY 34 DITCH DU	IVEST.	H=S∝	dium Bisulf	fate Solution	n	l=Sodiur	m Thiosulfa	lfate J=Ot	ther		<u> </u>	Mail To Address:	555 3	SOUTH 72"	OB AUE	
Project State:	WI		FILTER (YES/I		Y/Ni	N	N	IN						WAUSA	u, WI 54	401	
Sampled By (Pr	rint): TOM NORMINGTO	W.	PRESERV (COD	VATION	Pick Latter	F		A	Ti				Invoice To Contact:	KATHY	PARYAN		
Sampled By (Si			ν.	_, ,		ZSZT.	K				,		Invoice To Company:				_
PO #:	/ / Re	Regulatory Program:			posted		WHIEK	b					Invoice To Address:	SAME	AS * MAE		
Date Package	10)		x Codes		\$	2	18	1 8			.			) // (-	(/)	_ , _ ,	
☐ EPA L	Level III (billable)   B = E	= Blots DW = Charcoal GW	W ≈ Drinking W ≈ Ground W ≈ Surface	d Water	Analyses Reque	GRO/PNOC	/Avoc	MUESTORE					Invoice To Phone:	75.8	345,4100_		_
☐ EPAL	your sample   s = s	Soil WV Sludge WP	/W = Waste			64 64	986	12	.				CLIENT	LAB C	OMMENTS	Profile #	_
PACE LAB'#	CLIENT FIELD ID		TIME	MATRIX			1 2	100	<u> </u>				COMMENTS	'	Use Only)	<u> </u>	
60/	GPW-1		1020	GW !			3							3-41	Onl's		
002	GP-2 @-GFT		1045	ડ		1	<u>                                     </u>	1						Hon	poly, Los	5 <sup>F</sup>	
- 1	GPW-2 (5570 TN 10/14	13/09 1		Gω			2							21-1	48 mb	<i>T</i>	
, 1	GP-3 @ -3 FT.	10/3/0 11	1/20	5		1	!	1						400	poly, 20	55 -	
005	GPW-3	19/13/19/11	/30	GW			3							34	40mls	<u>/</u>	
	GPW -4	1	1	Śω			3										
	GAW - 5			SW			3							V			
808	GPW-6	19/13/19 2		GW			2							2 -	-40 ml	5	
	DITCH WATER	19/3/09 1:	:/5	6w			3							3-	40 ml	5	
010		19/3/20 2		,										1-41	Imle		
		177		1													
	naround Time Requested - Prelims AT subject to approval/surcharge)		11/ 11 1		£- /		Dat	te/Time:	/o1@3:	, 30 F	Received By:	×	Date/Time:	2.20	PACE Pro	ject No.	
	Date Needed:	Relinquiși	HONG ( isher By:	X	Druce	no ac	Da'	te/Time;	10165. J20		Receifed by:			920	4.624	021	
Transmit Prelim	n Rush Results by (complete what you want	nt): Relinquisi		<u>Leins</u>	ham		10/15	6/Time:		$\overrightarrow{\perp}$	All au		10/15/09 Date/Time:	9-	Receipt Temp = //	n/p °c	:
mail #2:		Kemiquisi	ineu by.				- 000	e/ i uno.			Received By:		, Date line.		Sample Re	ceipt pH	٦
elephone:		Relinquist	shed By:				Dat	te/Time:	~	TF	Received By:		Date/Time:		OK / Adj Cooler Cust		4
ax: Sam	nples on HOLD are subject to	Relinquist	shed By:				Dat	te/Time:		-	Received By:		Date/Time:		Present / No		
	al pricing and release of liability		•							- 1	•		•		Intact / No	ot Intact	

Version 6.0 06/14/06

## APPENDIX F BOREHOLE ABANDONMENT FORMS

#### WELL/DRILLHOLE/BOREHOLE ABANDONMENT Form 3300-5 2/2000 Page 1

Route to: Drinking Water Watershed/Wastewater Waste Manager	ement Remediation/Redevelopment Other					
(1) GENERAL INFORMATION	(2) FACILITY/OWNER INFORMATION					
WI Unique Well No. DNR Well ID No. County	Facility Name					
Portage	Flint Hill Resources, LP-Junction City Terminal					
Common Well Name GP-1 Gov't Lot (if applicable)	Facility ID License/Permit/Monitoring No.					
$\frac{\text{SW}}{\text{Grid Location}}$ 1/4 of Sec. $\frac{6}{\text{Sec.}}$ ; T. $\frac{24}{\text{N}}$ N; R. $\frac{7}{\text{W}}$	Street Address of Well 2267 Highway 34 North					
ft.  \[ \text{N.} \] S.,ft.  \[ \text{E.} \] W.	City, Village, or Town					
Local Grid Origin $\square$ (estimated: $\square$ ) or Well Location $\square$	Junction City   Present Well Owner   Original Owner					
Lat o ' Long o ' " or	Street Address or Route of Owner					
State Planeft. Nft. E. SCN Zone	2267 Highway 34 North					
Reason For Abandonment WI Unique Well No.	City, State, Zip Code					
Borhole no longer needed of Replacement Well	Junction City, WI 54443					
(3) WELL/DRILLHOLE/BOREHOLE INFORMATION	(4) PUMP, LINER, SCREEN, CASING, & SEALING MATERIA					
Original Construction Date	Pump & Piping Removed?  Liner(s) Removed?  Screen Removed?  Casing Left in Place?  Was Casing Cut Off Below Surface?  Did Sealing Material Rise to Surface?  Did Material Settle After 24 Hours?  Yes No Not Applica  Not Applica  Not Applica  Not Applica  Yes No Not Applica  Yes No Not Applica  Yes No Not Applica  Yes No Not Applica  Yes No Not Applica  Yes No Not Applica  Yes No Not Applica  Yes No Not Applica  Yes No Not Applica  Yes No Not Applica					
Other (Specify) Geoprobe	If Yes, Was Hole Retopped?					
Formation Type:  Unconsolidated Formation  Bedrock  Total Well Depth (ft) Casing Diameter (in.)	Required Method of Placing Sealing Material  Conductor Pipe - Gravity  Screened & Poured  Other (Explain)  (Bentonite Chips)					
(From ground surface)  Casing Depth (ft.)  Lower Drillhole Diameter (in.)  Was Well Annular Space Grouted?  Yes No Unknown  If Yes, To What Depth?  Depth to Water (Feet)  5.0	Sealing Materials  Neat Cement Grout Sand-Cement (Concrete) Grout Concrete Clay-Sand Slurry Bentonite-Sand Slurry Chipped Bentonite  For monitoring wells and monitoring well boreholes onl Bentonite Chips Granular Bentonite Bentonite-Cement Grout Bentonite - Sand Slurry Bentonite - Sand Slurry					
(5) Sealing Material Used	From (Ft.) To (Ft.) Sacks Sealant Mix Ratio or Mud Weight					
Native Soil	Surface 1.0					
Benseal	1.0 8.0 0.25					
(6) Comments						
(7) Name of Person or Firm Doing Sealing Work Date of Abandon						
Tetra Tech, Inc. 10/13/09	FOR DNR OR COUNTY USE ONLY					
Signature of Person Doing Work Date Signed	Date Received Noted By					
Street or Route Telephone Number 715/845-4100	Comments					
715/045 4100	Comments					

#### WELL/DRILLHOLE/BOREHOLE ABANDONMENT Form 3300-5 2/2000 Page 1

Route to: Drinking Water Watershed/Wastewater Waste Managem	nent R	temediation/Redevel	opment Other						
(1) GENERAL INFORMATION	(2) FACILITY /OWNER INFORMATION								
WI Unique Well No.   DNR Well ID No.   County	Facility Name								
Portage	Flint Hill Resources, LP-Junction City Terminal								
Common Well NameGP-2 Gov't Lot (if applicable)	Facility ID License/Permit/Monitoring No.								
$\underline{\underline{SW}}$ 1/4 of $\underline{\underline{NE}}$ 1/4 of Sec. $\underline{\underline{6}}$ ; T. $\underline{\underline{24}}$ N; R. $\underline{\underline{7}}$ $\underline{\underline{B}}$ W	Street Address of Well								
Grid Location W	2267 Highway 34 North								
ft. \( \subseteq \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	City, Vill	age, or Town							
Local Grid Origin $\square$ (estimated: $\square$ ) or Well Location $\square$	Junction City Present Well Owner Original Owner								
Lat ' " Long ' " or									
<u>S C N</u>		dress or Route of Ov							
State Plane ft. N ft. E Zone		Highway 34 North							
Reason For Abandonment WI Unique Well No.		e, Zip Code	•						
Borhole no longer needed of Replacement Well		on City, WI 5444		ALINGMATERIAL					
(3) WELL/DRILLHOLE/BOREHOLE INFORMATION				ALING MATERIAL					
Original Construction Date10/13/2009		p & Piping Removed		No Not Applicable					
Monitoring Well	1	r(s) Removed?		No Not Applicable					
If a Well Construction Report		en Removed?		No U Not Applicable					
Water Well is available, please attach.  Drillhole / Borehole	Casii	ng Left in Place?	☐ Yes ■	No					
		Casing Cut Off Belo		Yes No					
Construction Type:	Did S	Sealing Material Ris	e to Surface?	Yes No					
☐ Drilled ☐ Driven (Sandpoint) ☐ Dug		Material Settle After		Yes No					
Other (Specify) Geoprobe	If Yes, Was Hole Retopped?								
Formation Type:	Required Method of Placing Sealing Material								
Unconsolidated Formation Bedrock	Conductor Pipe - Gravity Conductor Pipe - Pumped								
	Screened & Poured United Characteristics Other (Explain)								
Total Well Depth (ft) Casing Diameter (in.) (From ground surface)	(Bentonite Chips)								
Casing Depth (ft.)	Sealing Materials For monitoring wells and								
Lower Drillhole Diameter (in.)		Neat Cement Grout Sand-Cement (Conc		oring well boreholes only					
		Concrete		Bentonite Chips					
Was Well Annular Space Grouted? Yes No Unknown		Clay-Sand Slurry	! 🔳	Granular Bentonite					
If Yes, To What Depth? Feet	Bentonite-Sand Slurry  Bentonite-Cement Grout								
Depth to Water (Feet)	Chipped Bentonite Bentonite - Sand Slurry								
		Ť T		Mix Ratio					
(5) Sealing Material Used	From (Ft.	) To (Ft.)	Sacks Sealant	or Mud Weight					
Native Soil	Surface	1.0							
Benseal	1.0	8.0	0.25						
(6) Comments									
(o) Comments									
(7) Name of Person or Firm Doing Sealing Work Date of Abandonn	nent								
Tetra Tech, Inc. 10/13/09		FOR	DNR OR COUNTY US	SE ONLY					
Signature of Person Doing Work Date Signed	D	ate Received	Noted By						
Mind ( T briming to 2/21/2009									
Street or Route Telephone Number	C	omments							
555 S 72nd Ave 715/845-4100									
City, State, Zip Code									
Wausau, Wi 54401									

#### WELL/DRILLHOLE/BOREHOLE ABANDONMENT Form 3300-5 2/2000 Page 1

Route to: Drinking Water Watershed/Wastewater Waste Managen	nent Remediation/Redevelopment Other						
(1) GENERAL INFORMATION	(2) FACILITY /OWNER INFORMATION						
WI Unique Well No. DNR Well ID No. County	Facility Name						
Portage	Flint Hill Resources, LP-Junction City Terminal						
Common Well Name GP-3 Gov't Lot (if applicable)	Facility ID License/Permit/Monitoring No.						
$\frac{\text{SW}}{\text{Grid Location}}$ 1/4 of Sec. $\frac{6}{}$ ; T. $\frac{24}{}$ N; R. $\frac{7}{}$ $\frac{\text{E}}{}$	Street Address of Well						
	2267 Highway 34 North						
ft. N. S.,ft. E. W.	City, Village, or Town						
Local Grid Origin (estimated: ) or Well Location	Junction City   Present Well Owner   Original Owner						
Lat o Long o ' or							
S C N	Street Address or Route of Owner						
State Planeft. Nft. E. \[ \bigcup \sqrt{Zone} \]	2267 Highway 34 North						
Reason For Abandonment WI Unique Well No.	City, State, Zip Code						
Borhole no longer needed of Replacement Well  (3) WELL/DRILLHOLE/BOREHOLE INFORMATION	Junction City, WI 54443  (4) PUMP, LINER, SCREEN, CASING, & SEALING MATERIAL						
Original Construction Date10/13/2009	Pump & Piping Removed?						
Monitoring Well	Liner(s) Removed?  Screen Removed?  Yes No Not Applicab Yes No Not Applicab						
Water Well  If a Well Construction Report is available, please attach.	Casing Left in Place? Yes No						
Drillhole / Borehole							
Construction Type:	Was Casing Cut Off Below Surface?  Did Sealing Material Rise to Surface?  Yes No						
☐ Drilled ☐ Driven (Sandpoint) ☐ Dug	Did Material Settle After 24 Hours? Yes No						
Other (Specify) Geoprobe	If Yes, Was Hole Retopped? Yes No						
Formation Type:	Required Method of Placing Sealing Material						
Unconsolidated Formation Bedrock	Conductor Pipe - Gravity Conductor Pipe - Pumped						
	Screened & Poured Unter (Explain)						
Total Well Depth (ft) Casing Diameter (in.)	(Bentonite Chips)						
(From ground surface)  Casing Depth (ft.)	Sealing Materials For monitoring wells and						
Lower Drillhole Diameter (in.)	Neat Cement Grout monitoring well boreholes only Sand-Cement (Concrete) Grout						
	Concrete Bentonite Chips						
Was Well Annular Space Grouted?  Yes No Unknown	Clay-Sand Slurry Granular Bentonite						
If Yes, To What Depth? Feet	Bentonite-Sand Slurry Bentonite-Cement Grou						
Depth to Water (Feet)	Chipped Bentonite   Bentonite - Sand Slurry						
(5) Sealing Material Used	From (Ft.) To (Ft.) Sacks Sealant Mix Ratio or Mud Weight						
Native Soil	Surface 1.0						
Benseal	1.0 8.0 0.25						
(6) Comments							
(7) Name of Person or Firm Doing Sealing Work Date of Abandonn	nent						
Tetra Tech, Inc. 10/13/09	FOR DNR OR COUNTY USE ONLY						
Signature of Person Doing Work Date Signed	Date Received Noted By						
flore OT boning to 12/21/2009							
Street or Route Telephone Number	Comments						
555 S 72nd Ave 715/845-4100							
City, State, Zip Code Wausau, Wi 54401							
ייים אין אין אין אין אין אין אין אין אין אין							

#### WELL/DRILLHOLE/BOREHOLE ABANDONMENT Form 3300-5 2/2000 Page 1

Route to: Drinking Water Watershed/Wastewater Waste Manager							
(1) GENERAL INFORMATION			INFORMATION				
WI Unique Well No.   DNR Well ID No.   County	Facility Name						
Portage		l Resources, L	P-Junction City Term				
Common Well Name GP-4 Gov't Lot (if applicable)	Facility ID		License/Permit/Mor	nitoring No.			
$\frac{\text{SW}}{\text{Grid Location}}$ 1/4 of $\frac{\text{NE}}{\text{NE}}$ 1/4 of Sec. $\frac{6}{\text{Sec}}$ ; T. $\frac{24}{\text{N}}$ N; R. $\frac{7}{\text{NE}}$ $\frac{\text{E}}{\text{NE}}$	Street Addre	ess of Well					
Grid Location W	2267 Hig	ghway 34 Nort	th				
ft. \( \sum \) N. \( \bullet \) S., \( \ldots \) ft. \( \sum \) E. \( \bullet \) W.	City, Village	e, or Town					
Local Grid Origin (estimated: ) or Well Location	Junction						
	Present Well	l Owner	Original O	wner			
Lat o ' " Long o ' " or							
State Plane ft. N. ft. E. $\overset{S}{\square}$ Zone		ess or Route of C					
Reason For Abandonment WI Unique Well No.	City, State, 2	ghway 34 Nort	h				
		-	42				
Borhole no longer needed of Replacement Well  (3) WELL/DRILLHOLE/BOREHOLE INFORMATION		City, WI 544		EALING MATERIAL			
Original Construction Date10/13/2009		Piping Removed?	ed? Yes Yes Yes	No Not Applicable No Applicable			
Monitoring Well		Removed?	Yes	No Not Applicable			
Water Well If a Well Construction Report is available, please attach.		Left in Place?	Yes	No Inot Applicable			
Drillhole / Borehole							
Construction Type:		sing Cut Off Be ding Material Ri		Yes No			
☐ Drilled ☐ Driven (Sandpoint) ☐ Dug		ning Material Ri terial Settle Afte		Yes No			
		s, Was Hole Ret		Yes No			
Other (Specify) Geoprobe			cing Sealing Material	163 🗀 110			
Formation Type:		nductor Pipe - C		ctor Pipe - Pumped			
Unconsolidated Formation Bedrock	Screened & Poured Other (Explain)						
Total Well Depth (ft) Casing Diameter (in.)	(Bentonite Chips)						
(From ground surface)	Sealing Materials For monitoring wells and						
Casing Depth (ft.)		at Cement Grou		itoring well boreholes only			
Lower Drillhole Diameter (in.)	☐ San	nd-Cement (Con	crete) Grout				
Was Well Annular Space Grouted?	Coi	ncrete	! <u>L</u>	Bentonite Chips			
If Yes, To What Depth? Feet	Clay-Sand Slurry Granular Bentonite						
	Bentonite-Sand Slurry Bentonite-Cement Grout						
Depth to Water (Feet)	☐ Chi	ipped Bentonite		Bentonite - Sand Slurry			
(5) Sealing Material Used	From (Ft.)	To (Ft.)	Sacks Sealant	Mix Ratio or Mud Weight			
Native Soil	Surface	1.0					
Benseal	1.0	8.0	0.25				
(6) Comments							
(7) Name of Person or Firm Doing Sealing Work Date of Abandons	nent						
Tetra Tech, Inc. 10/13/09		FOR	DNR OR COUNTY U	SE ONLY			
Signature of Person Doing Work Date Signed	Date	Received	Noted By				
Maring J. Thorning to 121/2009							
Street or Route Telephone Number	Com	ıments					
555 S 72nd Ave 715/845-4100	_						
City, State, Zip Code							
Wausau, Wi 54401							

### **WELL/DRILLHOLE/BOREHOLE ABANDONMENT** Form 3300-5 2/2000 Page I

Route to: Drinking Water Watershed/Wastewater Waste Manager								
(1) GENERAL INFORMATION			INFORMATION					
WI Unique Well No.   DNR Well ID No.   County	Facility Name							
Portage	Flint Hill Resources, LP-Junction City Terminal							
Common Well NameGP-5 Gov't Lot (if applicable)	Facility ID License/Permit/Monitoring No.							
$\frac{\text{SW}}{\text{Grid Location}}$ 1/4 of $\frac{\text{NE}}{\text{NE}}$ 1/4 of Sec. $\frac{6}{\text{Sec}}$ ; T. $\frac{24}{\text{N}}$ N; R. $\frac{7}{\text{NE}}$ W	Street Addre							
		ghway 34 Nor	th					
ft. \( \sum_{N.} \) \( \sum_{S.,} \)ft. \( \sum_{E.} \) \( \sum_{W.} \)	City, Village							
Local Grid Origin (estimated: ) or Well Location	Junction		Outstant	0				
	Present Well Owner Original Owner							
Lat o ' " Or	Street Addre	ess or Route of C	Owner					
State Planeft. Nft. E. Zone	2267 His	ghway 34 Nor	th					
Reason For Abandonment WI Unique Well No.	City, State,	Zip Code						
Borhole no longer needed of Replacement Well	Junction	City, WI 544	43					
(3) WELL/DRILLHOLE/BOREHOLE INFORMATION	(4) PUMP,	LINER, SCR	EEN, CASING, &	SEALING MATERIAL				
10/12/2000	Pump &	& Piping Remov	ed? Yes	No Not Applicable				
Original Construction Date10/13/2009		) Removed?	Yes	No Not Applicable				
Monitoring Well  If a Well Construction Report		Removed?	Yes	☐ No ☐ Not Applicable				
Water Well is available, please attach.		Left in Place?	Yes	No				
Drillhole / Borehole		asing Cut Off Be	Now Surface?	Yes No				
Construction Type:	1	aling Material R		Yes No				
☐ Drilled ☐ Driven (Sandpoint) ☐ Dug		terial Settle Afte	1	Yes No				
Other (Specify) Geoprobe		s, Was Hole Ret		Yes No				
Fornation Type:	Require	ed Method of Pla	acing Sealing Material					
	Conductor Pipe - Gravity Conductor Pipe - Pumped							
Unconsolidated Formation Bedrock	Screened & Poured Uther (Explain)							
Total Well Depth (ft) Casing Diameter (in.)	(E	Bentonite Chips)						
(From ground surface)  Casing Depth (ft.)	Sealing Materials For monitoring wells and							
	☐ Ne	at Cement Grou	t m	onitoring well boreholes only				
Lower Drillhole Diameter (in.)	☐ ☐ Sai	nd-Cement (Con	crete) Grout					
Was Well Annular Space Grouted? Yes No Unknown		ncrete		Bentonite Chips				
If Yes, To What Depth? Feet		ay-Sand Slurry	_ i	Granular Bentonite				
	Bentonite-Sand Slurry Bentonite-Cement C							
Depth to Water (Feet)	☐ Ch	ipped Bentonite		Bentonite - Sand Slurry				
(5) Sealing Material Used	From (Ft.)	To (Ft.)	Sacks Sealant	Mix Ratio or Mud Weight				
Native Soil	Surface	1.0						
Native Soil	Surface	1.0						
Benseal	1.0	8.0	0.25					
(6) Comments								
(7) Name of Person or Firm Doing Sealing Work Date of Abandon	ment							
Tetra Tech, Inc. 10/13/09	nent	FOI	R DNR OR COUNTY	USE ONLY				
Signature of Person Doing Work Date Signed	— Date	e Received	Noted By					
Signature of Person Doing work	7							
Street or Route Telephone Number	Con	nments						
555 S 72nd Ave 715/845-4100	00.1							
City, State, Zip Code								
Wausau, Wi 54401								

#### WELL/DRILLHOLE/BORE HOLE ABANDONMENT Form 3300-5 2/2000 Page 1

Route to: Drinking Water Watershed/Wastewater Waste Manager								
(1) GENERAL INFORMATION	(2) FACILITY /OWNER INFORMATION							
WI Unique Well No. DNR Well ID No. County	Facility Name							
Portage	Flint Hill Resources, LP-Junction City Terminal							
Common Well Name GP-6 Gov't Lot (if applicable)	Facility ID License/Permit/Monitoring No.							
SW LULES NE LULES G. T. 24 N.B. 7 DE	Street Address of Well							
$\frac{\text{SW}}{\text{Grid Location}}$ 1/4 of Sec. $\frac{6}{\text{IV}}$ ; T. $\frac{24}{\text{IV}}$ N; R. $\frac{7}{\text{IV}}$ $\frac{\text{E}}{\text{IV}}$	2267 Highway 34 North							
ft. \( \simeg \) N. \( \begin{array}{c} \simeg \) S., \( \ldots \) ft. \( \simeg \) E. \( \begin{array}{c} \w \)	City, Village, or Town							
Local Grid Origin (estimated: ) or Well Location	Junction City							
	Present Well Owner Original Owner							
Lat o Long o or	Street Address or Route of Owner							
State Planeft. Nft. Eft. E	2267 Highway 34 North							
Reason For Abandonment WI Unique Well No.	City, State, Zip Code							
Borhole no longer needed of Replacement Well	Junction City, WI 54443							
(3) WELL/DRILLHOLE/BOREHOLE INFORMATION	(4) PUMP, LINER, SCREEN, CASING, & SEALING MATERIAL							
10/12/2000	Pump & Piping Removed? Yes No Not Applicable							
Original Construction Date10/13/2009	Liner(s) Removed?  Liner(s) Removed?  Yes No Not Applicable							
Monitoring Well  If a Well Construction Report	Screen Removed? Yes No Not Applicable							
Water Well is available, please attach.	Casing Left in Place? Yes No							
Drillhole / Borehole	Was Casing Cut Off Below Surface? Yes No							
Construction Type:	Did Sealing Material Rise to Surface?  Yes No							
☐ Drilled ☐ Driven (Sandpoint) ☐ Dug	Did Material Settle After 24 Hours? Yes No							
Other (Specify) Geoprobe	If Yes, Was Hole Retopped? Yes No							
Formation Type:	Required Method of Placing Sealing Material							
Unconsolidated Formation Bedrock	Conductor Pipe - Gravity Conductor Pipe - Pumped							
Onconsolidated Formation Dedrock	Screened & Poured Unter (Explain)							
Total Well Depth (ft) Casing Diameter (in.)	(Bentonite Chips)							
(From ground surface)  Casing Depth (ft.)	Sealing Materials For monitoring wells and							
Lower Drillhole Diameter (in.)	Neat Cement Grout monitoring well boreholes only     Sand-Cement (Concrete) Grout							
Was Well Annular Space Grouted?	Concrete Bentonite Chips							
If Yes, To What Depth? Feet	Clay-Sand Slurry Granular Bentonite							
0.0	Bentonite-Sand Slurry Bentonite-Cement Grou							
Depth to Water (Feet)8.0	☐ Chipped Bentonite ☐ ☐ Bentonite - Sand Slurry							
(5) Sealing Material Used	From (Ft.) To (Ft.) Sacks Sealant Mix Ratio or Mud Weight							
Native Soil	Surface 1.0							
Benseal	1.0 9.0 0.25							
(6) Comments	21							
(7) Name of Person or Firm Doing Sealing Work Date of Abandoni								
Tetra Tech, Inc. 10/13/09	FOR DNR OR COUNTY USE ONLY							
Signature of Person Doing Work Date Signed	Date Received Noted By							
Maries ( Plomington 2119 Dec 2009	/							
Street or Route Telephone Number 715/845-4100	Comments							
555 S 72nd Ave /15/845-4100 City, State, Zip Code								
Wausau, Wi 54401								



#### State of Wisconsin \ DEPARTMENT OF NATURAL RESOURCES

Jim Doyle, Governor Matthew J. Frank, Secretary Scott Humrickhouse, Regional Director Wausau Office 5301 Rib Mountain Drive Wausau, Wisconsin 54401 Telephone 715-359-4522 FAX 715-355-5253 TTY Access via relay - 711

June 22, 2009

BRRTS #02-50-553760

FILE COPY

MS TERRIE BLACKBURN FLINT HILLS RESOURCES LP TERMINAL OPERATIONS 4111 EAST 37<sup>TH</sup> STREET NORTH WICHITA KS 67220

RE: Flint Hill Resources – Junction City Terminal

Ditch Line Release 2267 State Highway 34 Junction City, Wisconsin

Dear Ms. Blackburn:

Thank you for contacting me this morning to discuss recent changes in personnel at Flint Hill Resources and the status of the projects at the Junction City Terminal. It is my understanding that there will be additional work completed in the ditch area on the west side of the property.

As I explained to you, this ditch line case was originally opened as a spill case. Typically spill cases are releases to the environment that are addressed immediately with no further follow up. These cases are typically closed with a "No Further Action" letter under s.NR708.09 Wisconsin Administrative Code or when they become a long-term case.

When additional investigation and/or remedial actions are needed to address the release, the cases become long-term. At that time the spills identification number (BRRTS #) is closed out and the case is assigned another BRRTS # indicating it is no longer a spill. In your case the spills number 04-50-551431 was closed out and 02-50-553760 was assigned to the case. Please make sure that all future correspondence references the BRRTS number. This case will be closed out under s.726 Wis. Adm. Code.

Please remember that even though the Department may not review a case at every stage in the investigation and cleanup, you are still required by the Spills Law (Wisconsin Statute 292.11) to take the steps necessary to restore the environment to the extent practicable. If you want a formal response from the agency on a specific submittal, please be aware that a review fee is required in accordance with ch. NR 749, Wis. Adm. Code. Fees are listed at the following website <a href="http://www.legis.state.wi.us/rsb/code/nr/nr749.pdf">http://www.legis.state.wi.us/rsb/code/nr/nr749.pdf</a>.



Please contact me at 715-359-6514 if you have any questions regarding this letter. We appreciate the steps you have taken to date to address the environmental contamination at the site.

Sincerely,

Lisa Gutknecht

Remediation & Redevelopment Program

Lose Lutenecht

c: Bill Evans – DNR, Eau Claire Greg Aldrian, TetraTech

#### Gutknecht, Lisa A - DNR

From: Blackburn, Terrie [Terrie.Blackburn@fhr.com]

Sent: Monday, June 22, 2009 12:35 PM

To: Gutknecht, Lisa A - DNR

Subject: RE: FHR-Junction City Terminal, Tank 300 Dike Area Regrading Project

Flint Hills Resources, LP Terminal Operations 4111 East 37th Street North Wichita, Kansas 67220

**From:** Gutknecht, Lisa A - DNR [mailto:Lisa.Gutknecht@Wisconsin.gov]

Sent: Monday, June 22, 2009 11:38 AM

To: Blackburn, Terrie

Subject: RE: FHR-Junction City Terminal, Tank 300 Dike Area Regrading Project

Terrie.

Thank you for the update this morning and for checking on the stockpiled material at the Junction City Terminal. Would you please provide me with your mailing address for the letter that I will be sending regarding the ditch release. Thank you.



Wausau Service Center

Remediation & Redevelopment Program

Wisconsin Department of Natural Resources

5301 Rib Mountain Drive

Wausau, WI 54401

(雪) phone:

(715) 359-6514

(☎) fax:

(715) 355-5253

(E) e-mail:

Lisa.Gutknecht@Wisconsin.gov

**From:** Blackburn, Terrie [mailto:Terrie.Blackburn@fhr.com]

Sent: Monday, June 22, 2009 10:31 AM

To: Gutknecht, Lisa A - DNR

Cc: Meurette, Marsha; Stubbe, Brad

Subject: FHR-Junction City Terminal, Tank 300 Dike Area Regrading Project

Lisa,

Thank you for speaking with me regarding our recent staff changes and the Tank 300 outstanding questions. As I mentioned, Ross Hubbard has taken a new position within FHR and Shawn Marion has transitioned to managing our Stevens Point Asphalt Facility. Brad Stubbe is now the Terminal Manager for Junction City and I will now be your primary contact for any WI remediation related matters that you may have been working with Ross.

Tank 300 outstanding questions:

- 1. The clay liner thickness was 2 feet, per the contractor.
- 2. The soil removed from the dike area was field screen, found to clean, stockpiled in a clean soil lay down area, covered and has remained there since the work was completed. There are no current plans to use the soil and it remains covered.

It was nice to meet you and please let me know if you have any further questions.

#### Terrie Blackburn

Compliance Director Flint Hills Resources, LP EH&S - Terminals Group 316-828-8509 office terrie.blackburn@fhr.com

#### Gutknecht, Lisa A - DNR

From:

Sent:

Norquist, Elizabeth A - DNR Monday, June 22, 2009 11:12 AM Gutknecht, Lisa A - DNR

To:

Subject:

Flint Hills Ditch Line 02-50-553760

Lisa,

Here is your new ERP for the Flint Hills Ditch Line 02-50-553760. The spill and the ERP will be crossed referenced. Let me know if you need anything else.

## Difch Spill 04-50-551431

## **SIEMENS**

April 28, 2008

Tetra Tech., Inc. 555 S. 72nd Ave. Wausau, WI 54401

Attn: Greg Aldrian

**REPORT NO.: 0804474** 

PROJECT NO.: 5340045, FHR Junction City, Ditch Water Sarr

Please find enclosed the analytical report, including the Sample Summary, Sample Narrative and Chain of Custody for your sample set received April 25, 2008.

All analyses were performed in accordance with NELAC Standards using approved methods as indicated on this report.

If you have any questions about the results, please call. Thank you for using Siemens Water Technologies for your analytical needs.

Sincerely,

Siemens Water Technologies

unes & Saltows /~

James Salkowski

Lab Director

Enviroscan Analytical™ Services

I certify that the data contained in this report has been generated and reviewed in accordance with the Siemens Water Technologies Quality Assurance Program. Exceptions, if any, are discussed in the sample narrative. Samples will be retained for 30 days from the date of this report, then disposed in an appropriate manner. Siemens Water Technologies Corp. reserves the right to return samples identified as hazardous. Release of this Final Report is authorized as verified by the following signature.

Approved by:

**Certifications:** 

Wisconsin 737053130 Minnesota 055-999-302

Illinois 100317

inayllyas

#### **SAMPLE SUMMARY**

<u>Lab Id</u> 0804474-01 0804474-02 <u>Client Sample Id</u> Trip Blank

Ditch Water Hwy 34

Date/Time Matrix 04/25/08 00:00 Water

04/25/08 12:20 Surface Water

Tetra Tech., Inc. 555 S. 72nd Ave. Wausau, WI 54401

Attn: Greg Aldrian

Sample ID: Trip Blank

PROJECT NO.: 5340045, FHR Junction City, Ditch Wat REPORT NO.: 0804474 DATE REC'D: 04/25/08 13:10 REPORT DATE: 04/28/08 09:55

PREPARED BY: JRS

Sample Date/Time: 04/25/08 0:00 Lab No.: 0804474-01

	Results	<u>Units</u>	LOD	LOQ	Dilution <u>Factor</u>	Qualifiers	Date <u>Analyzed</u>	<u>Analyst</u>
EPA 8021B								
1,2,4-Trimethylbenzene	ND	ug/L	0.400	1.30	1		04/25/08	ALZ
1,3,5-Trimethylbenzene	ND	ug/L	0.310	1.03	1		04/25/08	ALZ
Benzene	ND	ug/L	0.310	1.00	1		04/25/08	ALZ
Ethylbenzene	ND	ug/L	0.500	1.70	1		04/25/08	ALZ
m&p-Xylene	ND	ug/L	0.620	2.10	1		04/25/08	ALZ
Methyl Tert Butyl Ether	ND	ug/L	0.300	1.00	1		04/25/08	ALZ
o-Xylene	ND	ug/L	0.360	1.20	1		04/25/08	ALZ
Toluene	ND	ug/L	0.300	1.00	1		04/25/08	ALZ

Sample ID: Ditch Water Hwy 34

Matrix: Surface Water

Matrix: Water

Sample Date/Time:

04/25/08 12:20

Lab No.: 0804474-02

	<u>Results</u>	<u>Units</u>	<u>LOD</u>	LOQ	Dilution <u>Factor</u>	<u>Qualifiers</u>	Date <u>Analyzed</u>	<u>Analyst</u>
EPA 8021B								
1,2,4-Trimethylbenzene	7.21	ug/L	0.400	1.30	1		04/25/08	ALZ
1,3,5-Trimethylbenzene	4.03	ug/L	0.310	1.03	1		04/25/08	ALZ
Benzene	66.4	ug/L	0.310	1.00	1		04/25/08	ALZ
Ethylbenzene	11.8	ug/L	0.500	1.70	1		04/25/08	ALZ
m&p-Xylene	13.9	ug/L	0.620	2.10	1		04/25/08	ALZ
Methyl Tert Butyl Ether	3.52	ug/L	0.300	1.00	1		04/25/08	ALZ
o-Xylene	2.02	ug/L	0.360	1.20	1		04/25/08	ALZ
Toluene	2.65	ug/L	0.300	1.00	. 1		04/25/08	ALZ

#### **Qualifier Descriptions**

#### **Definitions**

LOD = Limit of Detection (Dilution Corrected)
LOQ = Limit of Quanitation (Dilution Corrected)
ND = Not Detected
COMP = Complete
SUBCON = Subcontracted analysis
mv = millivolts
pci/L = picocuries per Liter
mL/L = milliliters per Liter
mg = milligram

When the word "dry" follows the units on the result page the sample results are dry weight corrected.

LODs and LOQs are dry weight corrected for all soils except WI GRO, EPA 8021 and WI DNR/EPA 8260B methanol and WI DNR methylene chloride preserved

ug/l = Micrograms per Liter = parts per billion (ppb)
ug/kg = Micrograms per kilogram = parts per billion (ppb)
mg/l = Milligrams per liter = parts per million (ppm)
mg/kg = Milligrams per kilogram = parts per million (ppm)
NOT PRES = Not Present
ppth = Parts per thousand
\* = Result outside established limits.
mg/m3 = Milligrams per meter cubed
ng/L = Nanograms per Liter = Parts per trillion(ppt)
> = Greater Than

State of Wisconsin Methanol Soils for WI GRO, WI DNR/EPA 8260B and EPA 8021 are reported to the LOQ.

Company Nar	ne					Projec	:t						
TETRE	TETRA TECH					FHR - JUNCTION CITY - DITCH WATER SAMPLING							
Report Mailing Address 555 SOUTH FRAND AVENUE WAUSAU WI 54401						Contact Name, Phone, Fax, Email  SRES. ALDRIAN @ TETRATECH. CO.M							
J 1-	,	544	64 		,	715. 845. 4100							
Invoice Address  * SAME AS ABOVE**						Purchase Order # Invoice Contact and Phone No.  5340045 PENNY FULLER 9					ntact and Phone No.	915. 845. 4100	
			6	Soil/Solid	Other SURFACE WATER		Anal	yses Req	uested		- A	Lab Use Only Delivered by Walk-in (	Courier
Wis. PECFA Pr For Complianc (If Yes, please s Turnaround I	e <b>Monitorin</b> pecify Agend	g? Yes ey or Regulati [ ] Normal (   Name   Normal   Name   Normal   Name   Normal   Name   Normal   N	No Aon) A		b and is subject to surchages)	10 C s						Ship Cont. Ok? Y N. Samples Leaking? Y N. Seals OK? N. Rec'd on loe? Y N. Sample Receiving Comments:	X
Lab Use Only	Date	nple Time	No. of Co	Grab .	Sample ID	8						Comments	
-01	2/26/28			1	TRIP BLANK	X		ļ. <u> </u>			_	TB-PACE Andy	
-62	*/a5/o8	1220		3	DETCH WATER HWY 34	X							
		f Custod	<b>y</b> .		Relinquished By:			4/		Tim	PM	Received By:	
					·			7:	25 cg	131	ø	Au Andre	

Siemens Water Technologies 301 W. Military Rd. Rothschild, WI 54474 1-800-338-7226



# TABLE 2 GROUNDWATER CHEMISTRY FLINT HILLS RESOURCES PINE BEND, LLC JUNCTION CITY, WISCONSIN TETRA TECH #114-340570

SAMPLE LOCATION	MW-5									NR 140
DATE	5/1/08	12/23/08	5/19/09	12/1/09	5/27/10	11/24/10	2/17/11	8/24/11	PAL	ES
PARAMETER										
Diesel Range Organics	790	2600	2400	1800	1960	1880	1340	1520	NS	NS
Gasoline Range Organics	8990	11700	8090	8910	7400	7350	7290	10300	NS	NS
VOLATILE ORGANIC COMPO	UNDS									6
Benzene	1780	2410	1800	1520	1970	1290	1690	1830	0.5	- 5
Toluene	472	681	524	436	479	234	276	465	160	800
Ethylbenzene	514	764	574	622	640	484	581	650	140	700
Xylenes	1085	1510	1079	1086	1241	866	1032	1276	400	2,000
Methyl-tert-butyl-ether	<15.2	<6.1	<12.2	<12.2	<12.2	<12.2	<6.1	<12.2	12	60
Trimethylbenzenes <sup>1</sup>	459.7	641	395.4	514	547	447.7	507	514	96	480
1,2-Dichloroethane	<9.0	<0.36	<7.2	<7.2	<7.2	<7.2	<3.6	<7.2	0.5	5
POLYNUCLEAR AROMATIC H	IYDROCA	RBONS								
Naphthalene	73.2	80.5	67.2	98.2	49.7	43.7	106	111	10	100
Anthracene	<0.65	<1.3	<0.13	<0.30	<0.58	<0.72	<0.12	0.21*	600	3,000
Benzo(a)Pyrene	<0.54	<1.1	<0.11	<0.15	<0.29	<0.36	<0.059	<0.058	0.02	0.2
Benzo(b)fluoranthene	<0.51	<1.0	<0.10	<0.18	<0.35	<0.55	<0.090	<0.088	0.02	0.2
Chrysene	<0.70	<1.4	<0.14	<0.18	<0.35	<0.44	<0.072	<0.070	0.02	0.2
Fluoranthene	<0.53	<1.1	<0.11	<0.23	<0.45	<0.55	<0.091	<0.089	80	400
Fluorene	0.91*	<1.3	0.93*	1.3*	0.94*	<0.60	1.4	1.8	80	400
Pyrene	<0.68	<1.4	<0.14	<0.25	<0.48	<0.59	<0.098	<0.096	50	250
Total PAH List	132.11	130.7	68.13	99.5	81.26	68.7	179.3	182.37	NS	NS

All concentrations in ppb (ug/l)

PAL = WDNR Preventative Action Limit

ES = WDNR Enforcement Standard

NS = No applicable standard

1.3 = concentration > PAL

9.9 = concentration > PAL & ES

<sup>&</sup>lt; = Parameter was not detected and if present is less than the limit of detection reported

<sup>\* =</sup> Value is < the laboratory limit of quantitation, but reported per WDNR guidelines (3/1/96)

<sup>&</sup>lt;sup>1</sup> = Combined 1,2,4- & 1,3,5- trimethylbenzene compounds

